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Missouri Syphilis Elimination Project

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As we begin the 21st century, syphilis rates in the United States are at the lowest rate ever recorded—2.6 per 100,000 people. In addition, and perhaps more importantly, the remaining cases of syphilis are confined to a small number of geographic areas. Nationwide in 1998, over 50 percent of primary and secondary (P&S) syphilis cases were reported from only 28 counties, mostly concentrated in the southern United States. Syphilis is also preventable and curable, providing patients have adequate access to and utilization of care. Moreover, other industrialized countries have already eliminated syphilis from within their borders.

With the above factors in mind, the Centers for Disease Control and Prevention (CDC) determined that the United States now has an opportunity to eliminate syphilis. In October 1999, CDC unveiled a plan to accomplish this objective by 2005. The *National Plan to Eliminate Syphilis from the United States* defined elimination as the absence of sustained disease transmission. The national goal is to reduce the annual number of P&S syphilis cases to 1,000 or fewer, and to increase the number of syphilis free counties to 90 percent, within the next five years.

Elimination of syphilis would have far-reaching positive implications for public health. One such implication would be the removal of a serious infectious disease which very disproportionately affects certain populations of African Americans. (In Missouri in 1999, the rate of reported cases of P&S syphilis was 39 times higher in African Americans than in whites.) In addition, syphilis elimination, as defined by CDC, would decrease the likelihood of HIV transmission, as well as essentially eliminate the occurrence of congenital syphilis. Syphilis elimination would also reduce health care spending (it is estimated that more than $996 million is spent annually on syphilis nationwide).

To assist in elimination efforts, CDC has made additional funding available for areas that are still experiencing sustained disease transmission. Based on the high P&S syphilis rate in St. Louis City, which is six times greater than the national rate, Missouri received a portion of this funding for activities directed toward elimination in St. Louis City. While the number of cases has continued to decline since the last peak of syphilis in 1993, St. Louis City still ranked 20th in the nation among counties and independent cities in the number of new cases of P&S syphilis reported in 1998. In 1999, St. Louis City ranked 8th in the nation.

New strategies will need to be implemented along with previously utilized methods for preventing and controlling the spread of infection if the syphilis elimination project is to be successful. CDC has outlined five such strategies in the national plan.[1]

- **Enhanced Surveillance** – Enhance detection, monitoring and data analysis of syphilis cases and exposed sex partners.
- **Strengthened Community Involvement and Partnerships** – Collaboration with affected communities, and organizations that represent these communities, to develop and implement syphilis elimination plans.
- **Rapid Outbreak Response** – Identification of outbreaks based on locally determined thresholds and interruption of transmission.
- **Expanded Clinical and Laboratory Services** – Expanded and intensified activities that promote access to and

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utilization of care for persons infected with or exposed to syphilis.

- **Enhanced Health Promotion** – Development of activities that promote increased sexual health and/or modification of behaviors that place persons at risk.

Using the national plan as a "blueprint," St. Louis City has undertaken the following activities to assist in the elimination of syphilis:

- Improving capabilities to rapidly detect new cases. To accomplish this, the St. Louis City Health Department is working with major laboratories that have a history of reporting syphilis to assure both the accuracy and timeliness of reporting. The St. Louis City Health Department is also working with Washington University to maintain physician awareness of syphilis and emphasize the need for complete and timely reporting. Even during non-epidemic periods, the medical community needs to be taking appropriate sexual behavior histories on all patients, and performing thorough exams (including appropriate laboratory tests) on all at-risk individuals.
- Seeking venues to engage at-risk populations in health promotion activities that educate and reduce risk. This includes presentations that cover disease signs and symptoms, as well as safer sex and abstinence-based risk reduction. St. Louis City's Sexually Transmitted Disease (STD) Program will be conducting a number of mobile outreach and screening events based on epidemiologic data from enhanced surveillance activities. Neighborhoods where new cases have been identified or where there is evidence of high-risk behaviors will be actively targeted. The STD Program is also developing strong collaborations with St. Louis City's jail, holdover facility, medium security institution and court system to provide STD services, which will include screening and prevention education, to prisoners.
- Forming a Community Syphilis Elimination Advisory Group. This group will assist the St. Louis City Health Department in its efforts to design and implement culturally sensitive and specific interventions. Recruitment of community leaders, clergy, health agency personnel and members of the affected communities to collaborate with the STD Program will be a major component of this project. The St. Louis City Health Department is also seeking a community-based organization (CBO) to partner with it to provide greater access to at-risk populations. Requests for proposals from CBOs are currently being accepted.
- Collaborating with St. Louis University and Washington University in conducting research into the conditions that contribute to the high rates of disease in the St. Louis community. Specific interventions are being designed for high-risk groups such as sex workers and men who have sex with men (MSM).

If you would like further information about the syphilis elimination project, contact the Section of STD/HIV/AIDS Prevention and Care Services at (800) 359-6259, or visit our web site at **www.health.state.mo.us/sshapcs/SSHASPCS.html.**

Why should medical providers report diagnosed cases of syphilis?

- It is required by Missouri Department of Health's communicable disease rule 19 CSR 20-20.020.
- It assists in halting the spread of disease, and thus prevents the transmission of the infection from infected pregnant females to their unborn children.

What is done with received reports?

- Public health officials analyze the reports and determine the potential for an outbreak to occur, or determine if an outbreak is already occurring.
- Public health officials also analyze data on reported cases in order to characterize the occurrence of syphilis in different areas and different population groups. As a result, prevention activities can be better designed and evaluated.
- Information contained in the reports allows implementation of partner notification, which can assist in halting further spread of disease.
- Reports are handled in a confidential manner, and information contained in the reports will only be released to authorized personnel. Information provided to CDC does not contain any identifying information on individual patients. It is important to remember that funding levels may depend on the number of cases identified in a particular area. It is possible that by identifying additional cases of disease, additional funds may be obtained to help your community.

What are the benefits of partner notification?

- Rapid notification of exposed partner(s) (some of whom may be asymptomatic) that they have been exposed to a dangerous disease.[2]
- Treatment of infected partners to stop the spread of disease and prevent complications.[2]
- Prophylactic treatment of partners testing negative (but possibly infected) to prevent potential disease and transmission to others.[2]
- Decrease in disease incidence as the chain of infection is broken.[2]
- Provides partners with crucial health information, counseling, and risk reduction techniques.[3]
- Confidential notification of partners (by trained public health outreach workers) if the patient is unwilling or unable to do this.[3]

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Tuberculosis Annual Report for 1999

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The number of reported tuberculosis cases nationwide continued to decrease in 1999. According to the Centers for Disease Control and Prevention (CDC), 17,528 cases of tuberculosis were reported in 1999, representing a 4.5 percent decrease from the 18,361 cases reported in 1998. This represents the seventh consecutive year that tuberculosis cases have decreased nationally.

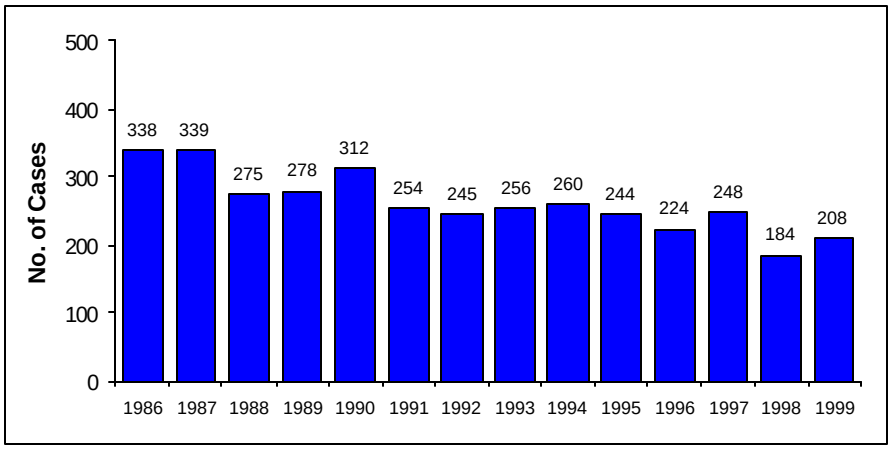

Figure 1. Reported tuberculosis cases by year, Missouri, 1986–99.

In Missouri, the number of reported tuberculosis cases actually increased by 13 percent, from 184 cases in 1998 to 208 cases in 1999. The case rate also increased from 3.4 to 3.9 per 100,000 population. (See Figure 1.)

The major metropolitan areas of St. Louis City, St. Louis County, Kansas City and Springfield-Greene County accounted for 63 percent of reported cases in Missouri during 1999 as compared to 66 percent in 1998. Rural areas accounted for 37 percent of the cases in 1999 compared to 34 percent in 1998. For 1999, three of the four major metropolitan areas experienced increases in the number of reported cases. St. Louis County increased from 21 to 35 cases (66.7%), Kansas City, increased from 39 to 42 cases (7.7%), and Springfield-Greene County increased from 6 to 13 cases (116.7%). St. Louis City decreased from 55 to 42 cases (-23.6%). The case rates for these areas in 1999 were 3.5 per 100,000 for St. Louis County, 9.5 for Kansas City, 5.8 for Springfield-Greene County, and 12.3 for St. Louis City. (See Figure 2.)

The number of reported cases in the rural areas increased 20.6 percent, from 63 cases in 1998 to 76 cases in 1999. Increases were noted in two of the six public health districts in Missouri. The Southeastern District increased from 11 to 24 cases (118.2%) and the Eastern District increased from six to seven cases (16.7%). The Northeastern District decreased from four to two cases (-50.0%); the Central District decreased from 15 to 13 cases (-13.3%); the Southwestern District decreased from

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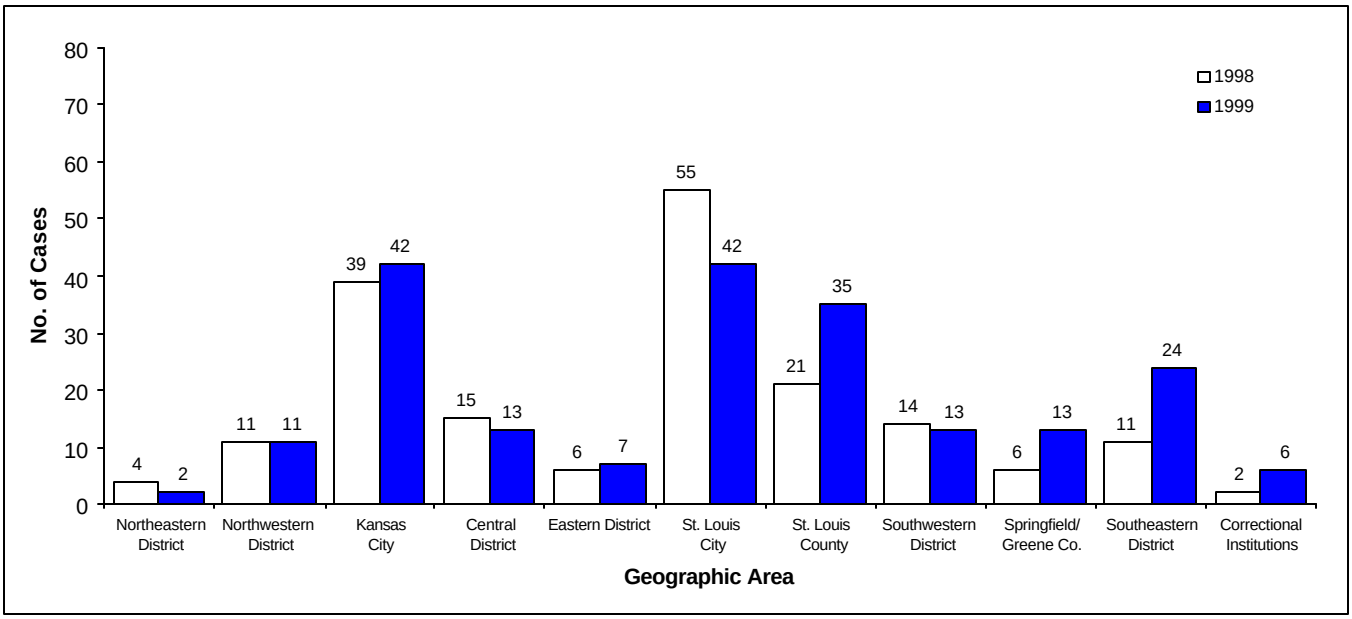

Figure 2. Reported tuberculosis cases by geographic area, Missouri, 1998 and 1999.

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14 to 13 cases (-7.1%); and the Northwestern District remained the same as the previous year at 11 cases. An increase from two to six cases (200.0%) was observed in state and federal correctional institutions. (See Figure 2 on page 3.)

Reported cases of tuberculosis among males continued to outnumber those in females. In 1999, 129 (62.0%) of the cases were male and 79 (37.9%) were female. In 1998, 123 (67.0%) of the cases were male and 61 (33.0%) were female.

In 1999, individuals with active tuberculosis disease ranged in age from less than one to 92 years. Increases in reported cases were observed in all but the 45-64 age group. The largest number of cases occurred in persons age 65 and older accounting for 34.1 percent of the reported cases. In 1998, the percentage was approximately the same at 34 percent. In 1999, 2.4 percent (5/208) of the reported tuberculosis cases occurred among patients in nursing homes. These facilities accounted for 6.0 percent (11/184) of the reported cases in 1998. The Section of Vaccine-Preventable and Tuberculosis Disease Elimination continues to address this issue by working closely with nursing home associations, residential care associations and the Division of Aging to provide facilities with the recommendations for tuberculin skin testing and follow-up of residents and employees. It is significant to note that the number of reported cases in persons less than 15 years of age increased 125 percent from 8 in 1998 to 18 in 1999. (See Figure 3.)

Tuberculosis case rates vary significantly among racial and ethnic groups. From 1998 to 1999, case rates per 100,000 population decreased among whites (from 1.9 to 1.8); decreased significantly in Hispanics (from 20.2 to 9.2); increased in blacks (from 12.8 to 15.5); and increased in Asians (from 34.0 to 39.8). The case rate among blacks and Asians is noticeably high. (See

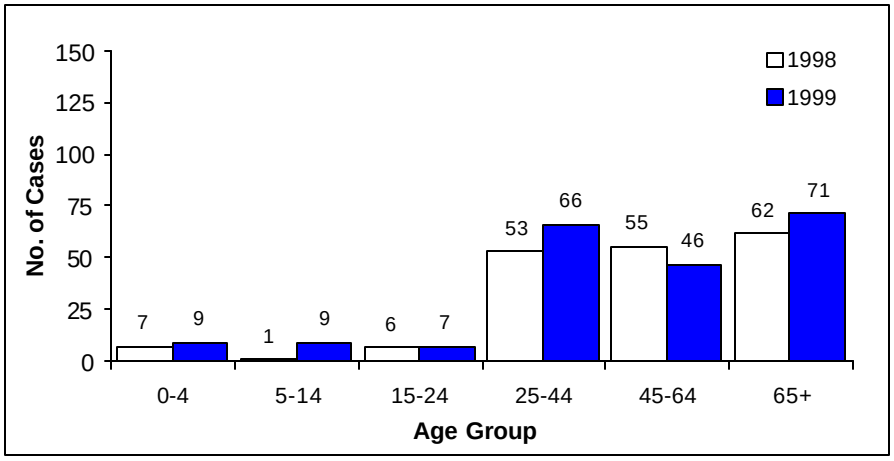

Figure 3. Reported tuberculosis cases by age group, Missouri, 1998 and 1999.

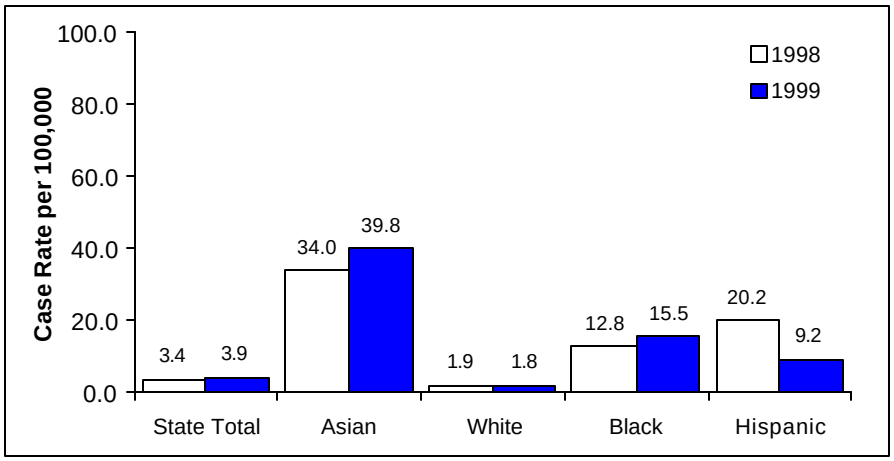

Figure 4. Tuberculosis case rates per 100,000 population by race/ethnicity, Missouri, 1998 and 1999.

Figure 4.) The number of tuberculosis cases occurring among foreign-born persons remained relatively the same from 38 (20.7%) in 1998 to 39 (18.8%) reported cases in 1999. Case rates among Asians, who are mostly foreign-born, are disproportionately higher than for other racial and ethnic groups.

The largest proportion of active disease cases, 169 cases (81.3%) were pulmonary compared to 39 cases (18.7%) which were extrapulmonary. Of the 39 extrapulmonary cases, the sites of disease were lymphatic (11), pleural (10), bone & joint (6), genitourinary (4), other (3), miliary (2), meningeal (2), and peritoneal (1). (See Figure 5.)

In 1999, three cases of multiple drug-resistant tuberculosis occurred. In addition, the single drug resistance rate remained high at 5.3 percent. When the drug resistance rate exceeds four percent, initial use of four tuberculosis drugs is recommended for all active disease patients and suspects.

For the period of January through December 1999, there were a total of nine tuberculosis/AIDS cases. Of the nine cases of tuberculosis/AIDS, five were reported from St. Louis City, three from Kansas City and one from Springfield-Greene County. Eight of the nine cases were between the ages of 30–50 and one was 1-year of age. Eight of the nine cases were male and one was female.

In 1999, two active tuberculosis disease cases were reported in the state correctional system and the same number were reported in 1998. During 1999, a

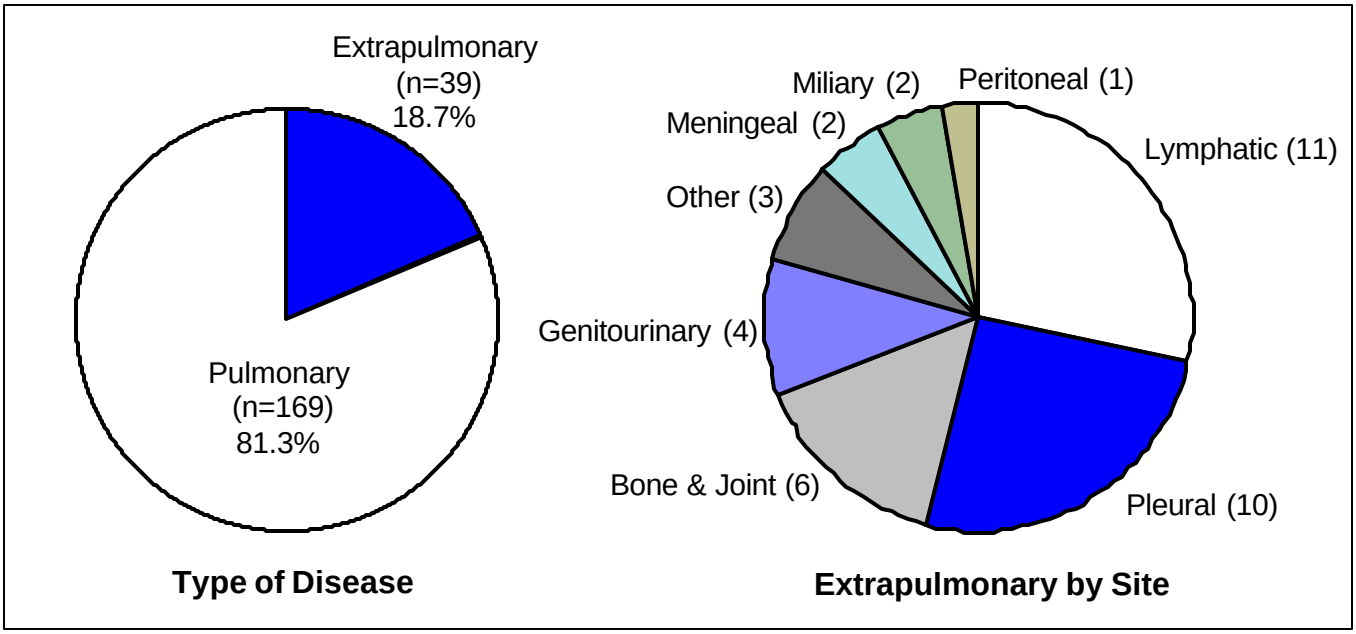

Figure 5. Reported tuberculosis cases by type of disease and site, Missouri, 1999.

total of 54,962 inmates were skin tested and read. There were 600 new positives in addition to the 5,019 who were previously positive. The overall positivity rate was 10.2 percent, and the positivity rate in previously unknown positives was 1.1 percent. All 600 positive inmates were started on treatment for tuberculosis infection. In 1999, a total of 474 inmates completed treatment for tuberculosis infection while in the correctional system.

The initial use of four tuberculosis medications is a priority for the Section of Vaccine-Preventable and Tuberculosis Disease Elimination in order to lower the drug resistance rate. All active tuberculosis disease patients, and all suspects, should be started on four medications from the beginning of treatment until drug susceptibility is determined. Those medications include isoniazid, rifampin, pyrazinamide and ethambutol or streptomycin. In 1996, only 67.9 percent of active disease patients were placed on the four-drug regimen. This improved to 75.0 percent in 1997, to 79.0 percent in 1998 and to 85.6 percent in 1999. However, much work remains in order to reach 100 percent compliance.

Directly observed therapy (DOT) has been adopted as the standard of care in Missouri. Our emphasis is on placing all active tuberculosis disease patients on DOT to ensure that treatment is completed. In areas where there are few active disease cases, steps should be taken to put patients with tuberculosis infection on directly observed treatment for infection (DOTI). These strategies include watching people swallow their pills. Our first priority is to motivate people to come to the local health department for DOT/DOTI. However, if this is not possible, we must go to the patient. Community volunteers can be recruited to assist the local health department in conducting DOTI. Volunteers may include friends, neighbors, local ministers, retired persons, pharmacists, school nurses, staff in physician offices and other individuals. In 1996, 74.1 percent of active tuberculosis disease patients were placed on DOT. This improved to 75.0 percent in 1997 and to 80.0 percent in 1998 and 1999. However, additional efforts must be undertaken in order to reach our goal of 100 percent. This will require the commitment and creativity of all those involved.

Missouri's goal is to have no more than 175 new tuberculosis cases annually by the end of the year 2000, and to then eliminate tuberculosis in the state by the year 2010.

Tuberculosis infection means that the person has bacteria that cause tuberculosis in their body. They are not sick because the bacteria are inactive. They cannot spread the bacteria to others. A person with tuberculosis infection usually has a positive skin test, a normal chest x-ray and does not feel sick.

Tuberculosis disease means that the person is sick from bacteria that are actively reproducing in their body. Persons with pulmonary tuberculosis usually have a positive skin test, an abnormal chest x-ray and one or more of the symptoms of tuberculosis such as persistent cough, chest pain, feeling weak, weight loss, fever and/or night sweats. These people are often capable of giving the infection to others.

1999–2000 Influenza Summary

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1999–2000 Missouri Influenza Season

An early beginning marked the1999–2000 Missouri influenza season. On October 12, 1999, a 13-year-old female was diagnosed by the influenza rapid-testing method at her physician's office in Greene County. The isolate was forwarded to the Missouri State Public Health Laboratory (SPHL) and identified by viral culture method as influenza A, subtype H3N2. The isolate was sent to the Centers for Disease Control and Prevention (CDC) laboratory where it was confirmed as influenza A/Sydney/05/97-like (H3N2). This type was similar to the influenza strain included in the vaccine for the 1999–2000 season. The last laboratory-confirmed case of influenza B was reported in week 13 and the last case of influenza A was reported in week 18.

There were 3,395 laboratory-confirmed cases of influenza reported in Missouri during the 1999–2000 season. Of the 3,395 confirmed cases, 2,409 (71%) were type A, with 72 subtyped as H3N2 and 4 subtyped as H1N1. There were 5 (0.002%) confirmed cases of type B influenza reported in Missouri. The remaining reported confirmed cases, 981 (29%), were detected by the influenza rapid-testing method, that did not distinguish type. The number of confirmed cases of influenza type A began increasing during week 48, the week of November 28 through December 4, and peaked during week 1, the week ending January 8, 2000. The number of cases returned to baseline levels by week 6. (See Figure 1.) Figure 2 shows laboratory-confirmed influenza cases by county of residence.

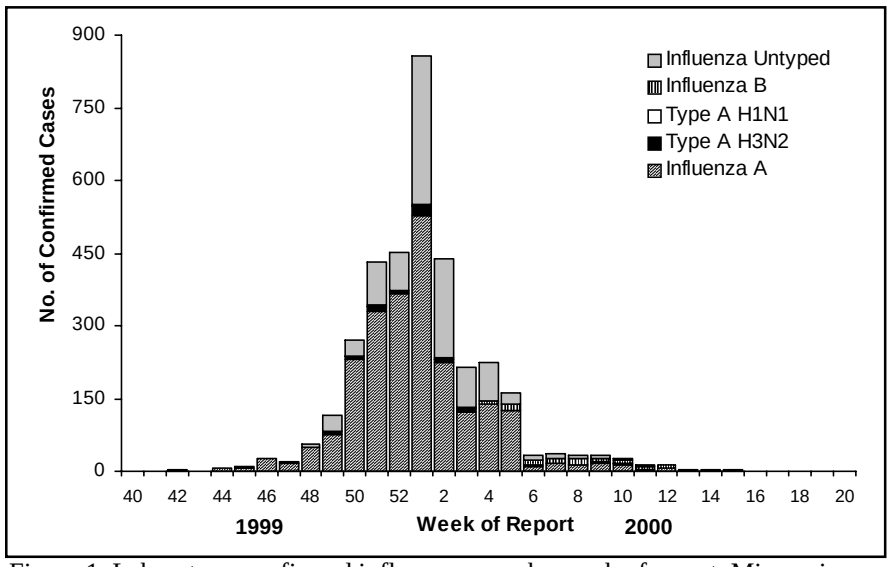

Figure 1. Laboratory-confirmed influenza cases by week of report, Missouri, 1999–2000 season.

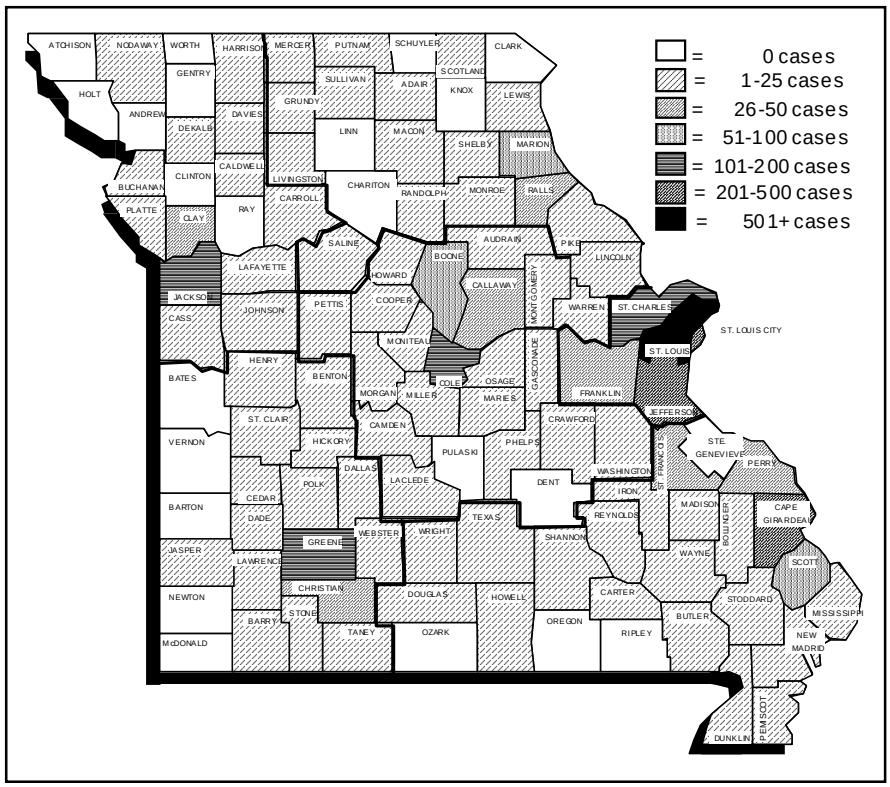

Figure 2. Laboratory-confirmed influenza cases by county of residence, Missouri, 1999–2000 season.

Missouri active surveillance sites reporting to local public health agencies submitted data showing a rise of influenza-like illness during week 49. Reports of cases peaked during week 2 and gradually declined by week 14. The 1999–2000 influenza season is best demonstrated by the sharp rise of the curve at week 2, with a sustained peak during weeks 2 through 4 and a gradual decline through the remaining influenza season. The curve rose above the 10-

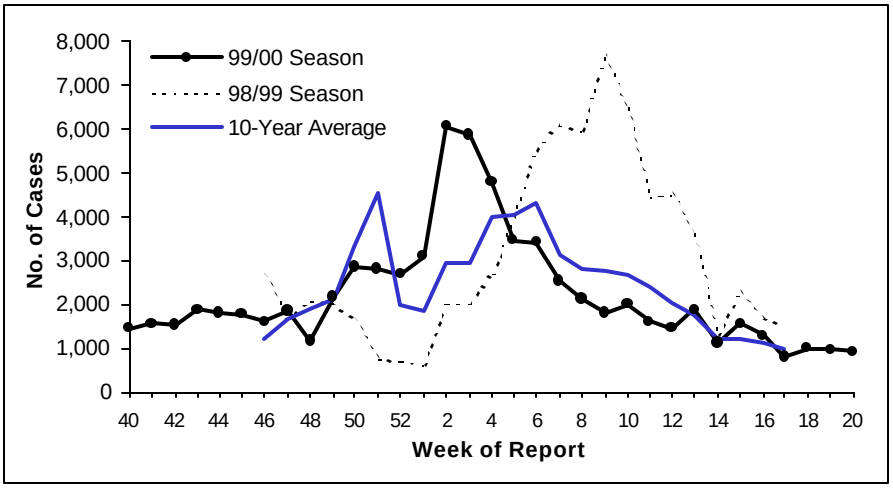

Figure 3. Influenza-like illness by week of report, Missouri, 1999/2000 season, 1998/1999 season and 10-year average*.

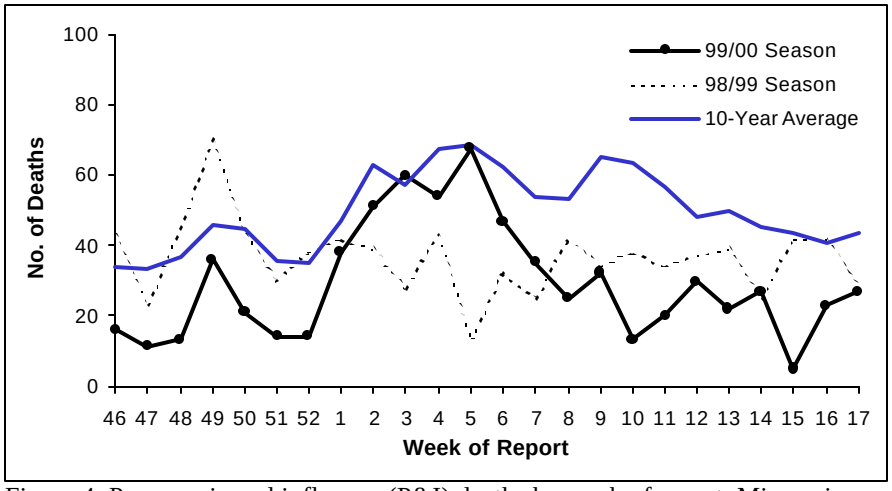

Figure 4. Pneumonia and influenza (P&I) deaths by week of report, Missouri, 1999/2000 season, 1998/1999 season and 10-year average*.

year average* at week 52 and remained above until week 5, and then later bounced above it during week 13 and again during weeks 15 and 16. (See Figure 3.) Data submitted to the CDC by the Missouri U.S. Influenza Sentinel Physicians show an irregular up and down pattern until week 49. At week 49, the curve rose, peaked at week 52, then gradually returned to baseline levels by week 4.

In Missouri, the number of pneumonia and influenza (P&I) deaths rose above the 10-year average* during week 3. The influenza season P&I mortality experience in Missouri appears to be much less than the prior 10 years, but greater than the 1998–1999 season. (See Figure 4.) Nationally, the percentage of P&I deaths exceeded threshold values for 33 of the 35 weeks as reported by the vital statistics offices of 122 United States cities. The proportion of deaths attributed to P&I peaked at 11.2 percent during week 3. During the previous influenza seasons, 1996–97, 1997–98 and 1998–99, the P&I mortality levels peaked between 8.8 and 9.1 percent. CDC cautions that the 1999–2000 P&I figures must be interpreted with caution because important changes have taken place in the case definition that may be contributing to higher estimates of P&I mortality than in previous years. CDC's analysis of those changes may be referenced in the March 10, 2000, *Morbidity and Mortality Weekly Report* (MMWR), which can be accessed via the CDC web site at **http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm4909a1.htm**.

From mid-December 1999 through January 2000, the Department of Health received nine reports of influenza-like illness outbreaks in long-term care facilities. Three of the nine outbreaks were confirmed as influenza A by the influenza rapid-testing method.

During January, seven schools cancelled classes up to four days because of increased absenteeism due to influenza-like illness in students, teachers, and school staff. One central Missouri county and one health care clinic in southeastern Missouri reported community outbreaks. The central Missouri community outbreak was confirmed by laboratory viral testing at the SPHL as influenza A/Sydney/05/97-like (H3N2).

2000–2001 Influenza Vaccine Recommendations

The Food and Drug Administration Vaccines and Related Biological Products Advisory Committee (VRBPAC) has recommended that the 2000–2001 trivalent influenza vaccine for the United States contain A/New Caledonia/20/99-like (H1N1), A/Moscow/10/99-like (H3N2), and B/Beijing/184/93-like antigens. For the A/Moscow/10/99-like (H3N2) antigen, United States manufacturers will use the antigenically equivalent A/Panama/2007/99 (H3N2) virus and for theB/Beijing/184/93-like antigen, they will use the antigenically equivalent B/Yamanashi/166/98 virus. These equivalent viruses will be used because of their growth properties and because they are representative of currently circulating A(H3N2) and B viruses. (Influenza vaccine recommendations for 2000–2001 can be found on pages 8–9 and 27 of this issue.)

* The 10-year average is the summation for that week of the 10 prior influenza seasons (not including the present season) divided by 10.

2000–2001 Recommendations for the Use of Influenza Vaccine

Summaries of the current recommendations for influenza vaccines from the Advisory Committee on Immunization Practices (ACIP) follow. The recommendations were originally published in *Morbidity and Mortality Weekly Report (MMWR)* on April 14, 2000; 49(RR-3):1–38. Since that time, the Centers for Disease Control and Prevention (CDC) have reported that vaccine manufacturers are experiencing production problems. This situation will lead to a delay in distribution and possibly substantially fewer doses of vaccines than in 1999.

Many providers have been concerned about how to adjust their fall immunization activities in light of the delay and potential reduction in the production of vaccine. In response, the CDC published adjunct ACIP recommendations in *MMWR* July 14, 2000;49(27);619–622.

Summaries of the adjunct recommendations and original recommendations follow. The later, adjunct, recommendations are first. The complete text of the adjunct recommendations is available through the CDC web site at **http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm4927a4.htm**; the text of the original recommendations is at **http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4903a1.htm**.

If you have questions regarding the recommendations, please contact the Section of Vaccine-Preventable and Tuberculosis Disease Elimination at (800) 699-2313.

Summary of Adjunct ACIP Recommendations Due to Delayed Vaccine Supply

1. Organized influenza vaccination campaigns should be delayed until early to mid-November. Influenza vaccine administered after mid-November can still provide substantial protective benefits. The purpose of this recommendation is to minimize cancellations of vaccine campaigns and wastage of vaccine doses resulting from delays in vaccine delivery.
2. Influenza vaccination of persons at high risk for complications from influenza and their close contacts should proceed routinely during regular health-care visits. Routine influenza vaccination activities in clinics, offices, hospitals, nursing homes, and other health-care settings (especially vaccination of persons at high risk for complications from influenza, health-care staff, and other persons in close contact with persons at high risk for complications from influenza) should proceed as normal.
3. Provider-specific contingency plans for an influenza vaccine shortage should be developed in order to maximize vaccination of high-risk persons and health-care workers in the event that there is a vaccine shortage.
4. In 2000, ACIP broadened its influenza vaccine recommendations to include all persons aged 50–64 years. If there is a vaccine shortage, it would be appropriate to focus primarily on vaccinating persons with high-risk conditions rather than this entire age group.

Minimizing wastage of influenza vaccine is important. In order to minimize the amount of vaccine that is returned to a manufacturer and discarded, influenza vaccine purchasers should refrain from placing duplicate orders with multiple companies. Options to promote redistribution of vaccine that otherwise would be returned or discarded are being developed.

As new information becomes available, CDC and the Food and Drug Administration (FDA) will issue updates.

Primary Changes in the 2000–2001 Recommendations

The updated recommendations include five principal changes from the 1999–2000 recommendations:

- The age for universal vaccination has been lowered to 50 years from 65 years.
- Scheduling of large, organized vaccination campaigns after mid-October should be considered because the availability of vaccine cannot be assured consistently in the early fall.
- The 2000–2001 trivalent vaccine virus strains are A/Moscow/10/99 (H3N2)-like, A/New Caledonia/20/99 (H1N1)-like, and B/Beijing/184/93-like strains.
- Information on neuraminidase-inhibitor antiviral drugs has been added.
- A list of other influenza-related infection control documents for special populations has been added.

Influenza

For those of you wishing to bookmark an Internet site for the most current influenza information from the Centers for Disease Control and Prevention (CDC), try:

http://www.cdc.gov/ncidod/diseases/fluvirus.htm

This site includes the most recent CDC surveillance reports and information on antivirals for influenza A, vaccine recommendations, international trends, etc.

The Food and Drug Administration's Vaccines and Related Biologic Products Advisory Committee (VRBPAC) recommends that the trivalent influenza vaccine prepared for the 2000–2001 season will include A/Moscow/10/99 (H3N2)-like, A/New Caledonia/20/99 (H1N1)-like, and B/Beijing/184/93-like antigens. For the A/Moscow/10/99 (H3N2)-like antigen, United States manufacturers will use the antigenically equivalent A/Panama/2007/99 (H3N2) virus and for the B/Beijing/184/93-like antigen, they will use the antigenically equivalent B/Yamanashi/166/98 virus.

Influenza vaccine is strongly recommended for any person aged 6 months or older who—because of age or underlying medical condition—is at increased risk for complications of influenza. In addition, health-care workers and others (including household members) in close contact with persons in high-risk groups should be vaccinated to decrease the risk of transmitting infection to persons at high risk.

Persons at High Risk for Influenza-Related Complications

Vaccination is recommended for the following groups of persons who are at increased risk for complications from influenza:

- persons aged >50 years;
- residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions;
- adults and children who have had chronic disorders of the pulmonary or cardiovascular systems, including asthma;
- adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus);
- children and teenagers (aged 6 months to 18 years) who are receiving long-term aspirin therapy and, therefore, might be at risk for developing Reye's syndrome after influenza infection; and
- women who will be in the second or third trimester of pregnancy during the influenza season.

Persons Who Can Transmit Influenza to Those at High Risk

Persons who are clinically or subclinically infected can transmit influenza virus to persons at high risk for complications from influenza. Efforts to protect members of high-risk groups against influenza might be improved by reducing the likelihood of influenza exposure from their care givers. Therefore, the following groups should be vaccinated:

- physicians, nurses, and other personnel in both hospital and outpatient-care settings;
- employees of nursing homes and chronic-care facilities who have contact with patients or residents;
- employees of assisted living and other residences for persons in high-risk groups;
- persons who provide home care to persons in high-risk groups; and
- household members (including children) of persons in high-risk groups.

Persons Infected with Human Immunodeficiency Virus

Limited information exists regarding the frequency and severity of influenza illness or the benefits of influenza vaccination among persons with human immunodeficiency virus (HIV) infection. However, reports suggest that influenza symptoms might be prolonged and the risk for complications from influenza increased for some HIV-infected persons.

Breastfeeding Mothers

Influenza vaccine does not affect the safety of mothers who are breastfeeding or of their infants. Breastfeeding does not adversely affect immune response and is not a contraindication for vaccination.

Travelers

Persons at high risk for complications of influenza should consider receiving influenza vaccine before travel if they were not vaccinated with influenza vaccine during the preceding fall or winter and they plan to a) travel to the tropics; b) travel with large organized tourist groups at any time of year; or c) travel to the Southern Hemisphere from April through September. Persons at high risk who received the previous season's vaccine before travel should be revaccinated with the current vaccine in the following fall or winter.

General Population

Physicians should administer influenza vaccine to any person who wishes to reduce the likelihood of becoming ill with influenza (the vaccine can be administered to children as young as 6 months). Persons who provide essential community services should be considered for vaccination to minimize disruption of essential activities during influenza outbreaks. Students or other persons in institutional settings (e.g., those who reside in dormitories) should be encouraged to receive vaccine to minimize the disruption of routine activities during epidemics.

Persons Who Should Not Be Vaccinated

Inactivated influenza vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine without first consulting

(continued on page 27)

Tularemia Exposure Through Specimen Handling

Sandy Hanauer
Missouri State Public Health Laboratory

Francisella tularensis is an organism that is highly virulent for most mammals. Each year, Missouri is consistently among the top three states (along with Arkansas and Oklahoma) with respect to the number of cases reported nationwide. In recent years, most of these cases were probably caused by tick bites. Recently, the Missouri State Public Health Laboratory (SPHL) has seen an increase in the number of referred cultures that have been identified as *F. tularensis*. Of the seven isolates received by the SPHL since June 1 of this year, only **two** submitting laboratories suspected tularemia and followed proper handling procedures. When a clinical laboratory does not suspect tularemia and does not observe proper precautions, multiple exposures among laboratory staff may occur. This results in the need for precautionary prophylaxis of any exposed or potentially exposed laboratory workers.

When **processing clinical specimens** suspected of containing tularemia, strict Biosafety Level 2 precautions must be observed (open bench as long as splashing or aerosol production potential is low, along with gloves, gowns, face-shields, etc.). Because *F. tularensis* is so highly infectious (the human infective dose is less than 10 organisms via the respiratory route), it is important that, once an organism suspected of being *F. tularensis* is isolated, **Biosafety Level 3** precautions are observed (same precautions as Biosafety Level 2, but working **completely** within a certified biological safety cabinet). It is also important that physicians suspecting a patient of having tularemia alert the laboratory, because of the danger to laboratory personnel who will process these clinical specimens. Physicians who obtain clinical specimens in their offices (such as aspirates from lymph nodes or scrapings from ulcers) should also be aware of potential exposure.

Tularemia, In Summary:

- ✔ The Missouri State Public Health Laboratory (SPHL) has seen an increase in *F. tularensis* isolates over the past month.
- ✔ Of the last seven isolates received in the SPHL, five of the submitting laboratories (and one physician's office) **did not know** they were dealing with tularemia and multiple exposures among technicians resulted. If organisms meeting the description of *F. tularensis* or suspected of being *F. tularensis* are encountered in a clinical laboratory, they should be forwarded immediately to the SPHL.
- ✔ Laboratory and other health care professionals exposed to *F. tularensis* should be prophylaxed with antibiotics to prevent infection with this highly infectious organism.
- ✔ It is not necessary to perform antimicrobial susceptibilities for isolates of *F. tularensis*.
- ✔ The drug of choice for *F. tularensis* infections is Streptomycin (cure rate 97%), followed by Gentamycin (86%), Tetracycline (88%), Chloramphenicol (77%) and others. Ceftriaxone is ineffective.
- ✔ Tetracycline (which is bacteriostatic) is effective as a prophylactic after laboratory exposure, when continued for 14 days.

If you have any questions, please call the Missouri State Public Health Laboratory at (573) 751-0633.

The following characteristics, when observed, should serve to alert laboratory technicians to the possibility of tularemia:

1. The **very** small size of *F. tularensis* on gram staining should be an immediate warning to microbiologists. Tularemia is a tiny, gram-negative coccobacillus; it is sometimes difficult to observe the actual morphology of individual organisms because they are so small.
2. *F. tularensis* is oxidase negative. **Any tiny, gram-negative, oxidase-negative organism should be suspected of being tularemia.** NOTE: Because *Brucella* species are also very small, gram-negative and highly contagious, oxidase-positive organisms fitting this description should also be handled at a Biosafety Level 3 until *Brucella* is ruled out.
3. *F. tularensis* usually requires cystine or cysteine to grow. It is very fastidious and may be slow-growing on initial isolation. It can be isolated on chocolate agar enriched with Isovitalex or selective medium for the isolation of *N. gonorrhoeae*, such as Thayer-Martin or Martin-Lewis media. There are less fastidious strains of *F. tularensis* that will grow on sheep agar. Tularemia will not grow on MacConkey agar and is almost entirely biochemically inert.

SPHL is fully equipped and capable of handling isolates suspected of being *F. tularensis*. The special bacteriology technicians who handle this organism have many years of experience in recognizing and identifying *F. tularensis* and have been immunoprophylaxed by vaccination. The SPHL offers a direct fluorescent antibody (DFA) test for which results can be reported back to submitting laboratories within a few hours of receipt of the specimen, as well as a slide agglutination test. If a smaller laboratory does not have the capability to culture for *F. tularensis*, tissue (such as lymph node or lung biopsies) may be accepted at SPHL for processing **after prior consultation with SPHL**.

Because of the high number of cases of tularemia seen in Missouri each year, and because of the many different types of clinical samples which may yield tularemia, SPHL recommends that **very little manual manipulation** be done with a suspect culture (that is, one meeting the above criteria). Such organisms can be forwarded **immediately** to the SPHL for confirmation or identification.

If you have questions about specimen submission, please contact the Missouri State Public Health Laboratory at (573) 751-0633.

The Missouri State Public Health Laboratory has developed a web page describing its services. The web page can be accessed through the Department of Health web site at **http://www.health.state.mo.us.**

LATE BREAKERS

☞ The Missouri Department of Health and the Missouri Nutrition Network are pleased to introduce the "Eat for Health" campaign to shape healthy eating habits among Missourians with limited resources. The "Eat for Health" campaign materials are available on the Department of Health web site at **http://www.health.state.mo.us/nutritionservices/eatforhealth.html#mnnf**. For more information, contact the Missouri Department of Health, Bureau of Nutrition Policy and Education, Missouri Nutrition Network at (573) 751-6183.

☞ This is the fourth year that the Missouri Department of Health will participate in the Centers for Disease Control and Prevention (CDC) influenza surveillance project called the U.S. Influenza Sentinel Physicians Surveillance Network. The program is designed as an active surveillance system to provide CDC with current national influenza-like illness information during the influenza season. The 2000–2001 influenza surveillance season begins the week ending October 1, 2000, and goes through the week ending May 19, 2001. If you are interested in participating in or would like more information about the U.S. Sentinel Physicians Surveillance Network, please contact the Section of Communicable Disease Control and Veterinary Public Health at (800) 392-0272.

☞ Over 2,000 health professionals in many areas of specialty met in Atlanta in mid-July for the **International Conference on Emerging Infectious Diseases (ICEID)**. Major topics included current work on surveillance, epidemiology, research, communication and training, bioterrorism, and prevention and control of emerging infectious diseases, both in the United States and abroad. Selected presentations from the ICEID conference are available online at: **http://www.cdc.gov/iceid/webcast/promo_webcast.htm.** Many presentations include both audio and slides. Some are also available as downloadable Microsoft PowerPoint presentations. In addition, the proceedings of the ICEID Conference will be published (electronically and in print) in an upcoming special issue of the ***Emerging Infectious Diseases Journal***. (This journal is available online at: **http://www.cdc.gov/ncidod/eid/**.)

☞ **A Guide to the Clinical Care of Women With HIV: 2000 Preliminary Edition** is available online from the Health Resources and Services Administration (HRSA) at: **http://hab.hrsa.gov/womencare.htm**. This 480 page document is described as the first comprehensive clinical manual on this topic, and is designed for physicians and other medical professionals caring for women living with HIV/AIDS.

☞ Current **HIV Treatment Guidelines** are available online from the HIV/AIDS Treatment Information Service (ATIS) at: **http://hivatis.org/trtgdlns.html**. Included here are:

- Adult and Adolescent Guidelines
- Pediatric Guidelines
- Perinatal Guidelines
- Health-Care Worker Exposure Guidelines
- Nonoccupational Exposure Considerations
- Opportunistic Infections Guidelines
- Tuberculosis Guidelines

(ATIS is a U.S. Department of Health and Human Services [DHHS] project.)

Also available from ATIS is ***HIV and Its Treatment: What You Should Know***, a consumer brochure that provides information from the HIV treatment guidelines developed by the DHHS and uses a question and answer format to make the information easier to understand by people without a technical background. It also includes a section on adherence to treatment plans. This document is available in PDF format at: **http://hivatis.org/publications/consumerbrochure599.pdf**. Hard copies are also available: call 1-800-448-0440 for a free single copy.

Vaccine-Preventable Disease 1999 Annual Report

Susan Denny
Section of Vaccine-Preventable and Tuberculosis Disease Elimination

The development of immunizations to protect against life-threatening diseases is arguably the most important medical development of the twentieth century.[1] As a result of widespread vaccination of children, there have been dramatic decreases in morbidity and mortality due to vaccine-preventable diseases in the United States.

As the incidence of most vaccine-preventable diseases in Missouri has continued to decline, efforts to collect complete and accurate information on remaining cases become increasingly important. By having accurate information on disease incidence, health care workers can better ensure that vaccines are widely distributed in order to prevent, control and eliminate vaccine-preventable diseases.

"The reason for collecting, analyzing, and disseminating information on a disease is to control that disease."[2] By analyzing information obtained on these cases, it will be possible to gain a better understanding of the factors that allow disease transmission despite high immunization rates.

"The occurrence of vaccine-preventable diseases in a community may be a sentinel event that signals the presence of an un- or underimmunized population within the community. Such populations may be small, access health care infrequently, or otherwise be difficult to identify."[3]

The Section of Vaccine-Preventable and Tuberculosis Disease Elimination is responsible for surveillance of pertussis, diphtheria, tetanus, measles, mumps, poliomyelitis and rubella, as well as *Haemophilus influenzae* type b in children under age 15. Surveillance of three other vaccine-preventable diseases, hepatitis A, hepatitis B and *Haemophilus influenzae* type b in adults, is conducted by the Section of Communicable Disease Control and Veterinary Public Health. (Information on the incidence of these diseases can be found in the Section of Communicable Disease Control and Veterinary Public Health 1999 Annual Report scheduled for publication in the September–October 2000 issue of this newsletter.)

In 1999, no cases of diphtheria or polio were reported in Missouri. There was one case of mumps in an 11-year-old female who had received two immunizations. There were two cases of rubella, both in adult males.

There was one case of tetanus in a 62-year-old female. "Tetanus is not a communicable disease, and the causative organism is ubiquitous in the environment; unlike other vaccine-preventable diseases, there is no herd immunity for tetanus."[3] As long as any person remains susceptible, or any child is born to a susceptible woman, cases of tetanus can continue to occur. Preventing these cases continues to be extremely difficult.

In 1999, 75 cases of pertussis were reported in Missouri, compared to 59 cases in 1998. Fifty-six cases were in children less than 1 year of age, seven cases were in children between the ages of 1 and 5, and the remaining 12 cases were in persons over age 5.

Incomplete immunization coverage is not the only reason that cases of pertussis continue to occur. The Advisory Committee on Immunization Practices (ACIP) recommends an optimum of five doses of pertussis vaccine for children through age 6. But even if a person is fully immunized by age 7, immunity eventually wanes. However, it is not recommended that persons 7 years or older receive routine pertussis vaccination because adverse reactions to the vaccine are thought to be more frequent, and pertussis-associated morbidity and mortality decrease with age.

The Department of Health is working with both public and private health care providers to achieve the goal of appropriately immunizing 90 percent of Missouri's 2-year-olds. As the department works toward this goal, good surveillance data will greatly enhance its ability to identify individuals and communities in which immunization rates need to be improved.

REFERENCES:

1. Ten great public health achievements—United States, 1900–1999. MMWR 1999; 48(50);1141.
2. Foege WH, Hogan RC, Newton LH. Surveillance projects for selected diseases. Int J Epidemiol 1976;5:29–37.
3. Wharton M. Disease Reduction Goals. Manual for the Surveillance of Vaccine-Preventable Disease. Atlanta, Ga: National Immunization Program, Centers for Disease Control and Prevention, 1997:1–5.

Syphilis Elimination

(continued from page 2)

- Prevent the transmission of syphilis from a past or present infected pregnant female partner to her unborn child.[3]

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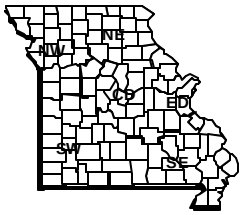
2. Kansas City, Missouri, Health Department. STD Examiner. July–September 1994;1(3).
3. Washington State Department of Health. Partner and Spousal Notification, Questions and Answers for Providers, August 1997.



Missouri Department of Health
Division of Environmental Health and Communicable Disease Prevention

QUARTERLY DISEASE OCCURRENCE BY REGION AND TIME PERIOD

Reporting Period*
April - June 2000

	Districts											3 Month State Totals		Cumulative January-June		
	CD	** ED	NE	** NW	SE	** SW	*** OTHER	Kansas City	St. Louis City	St. Louis Co.	Spfd. Greene Co.	2000	1999	For 2000	For 1999	5 YR MEDIAN
Vaccine Preventable																
Influenza	1	0	0	2	1	0	1	1	11	9	0	26	206	2414	935	302
Measles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Mumps	0	0	0	0	0	0	0	0	1	0	0	1	0	2	1	2
Pertussis	3	0	1	6	2	2	1	0	0	1	1	17	16	22	27	17
Viral Hepatitis																
A	5	0	1	6	2	20	1	9	41	8	2	95	94	248	217	511
B	23	19	5	24	12	14	11	42	94	69	7	320	42	373	81	152
C	0	2	1	0	0	1	1	0	1	0	2	8	2	16	2	na
Non-A Non-B	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Unspecified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Meningitis																
Meningococcal Disease	0	0	0	0	3	0	1	0	0	4	0	8	9	17	26	26
Meningococcal Other	1	0	1	0	1	1	2	1	5	5	1	18	16	34	26	26
Enteric Infections																
Campylobacter	25	15	8	6	15	31	1	10	15	25	16	167	172	249	255	255
E. Coli O157:H7	2	0	1	1	4	2	0	0	0	3	0	13	11	35	13	13
Salmonella	33	29	13	31	21	30	2	15	20	25	8	227	227	313	310	240
Shigella	19	5	0	23	32	8	4	69	47	30	1	238	282	343	396	225
Parasitic Infections																
Cryptosporidiosis	1	0	0	0	0	0	0	0	1	1	0	3	2	8	7	na
Giardiasis	24	10	2	7	4	15	3	6	45	32	1	149	182	315	296	286
Respiratory Diseases																
Legionellosis	0	0	0	1	1	1	0	2	0	4	2	11	7	13	11	8
Sexually Transmitted																
AIDS	8	3	1	4	11	5	3	19	50	15	7	126	117	226	196	117
HIV Infection	7	4	1	5	8	6	3	29	31	11	5	110	135	180	223	n/a
Chlamydia	270	117	86	156	213	187		865	641	623	119	3277	3458	6638	6959	2938
Gonorrhea	90	27	13	28	88	33		617	720	397	52	2065	4152	4021	3550	2151
P & S syphilis	1	0	0	0	0	0		0	4	1	0	6	57	21	50	29
Tuberculosis																
TB Disease	5	0	0	2	5	1	0	10	11	7	2	43	43	84	81	n/a
TB Infections	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Zoonotic																
Ehrlichiosis	1	1	0	1	3	1	0	1	1	4	0	13	2	13	2	0
Lyme Disease	4	3	2	1	5	0	1	0	0	1	0	17	24	21	29	20
Rabies (Animal)	2	0	0	4	1	2	0	0	2	2	0	13	8	15	14	14
Rocky Mountain Spotted Fever	2	1	0	0	3	6	4	1	0	3	0	20	6	20	6	6
Tularemia	2	1	0	1	3	2	0	0	1	0	1	11	6	13	6	5

No. of Outbreaks by Disease Agent

Disease Group	#
AGI	1
ARI	1
Chickenpox	1
C difficile	1
Salmonella	1
Scabies	3

STATEWIDE TOTALS FOR APRIL-JUNE 2000

Vaccine Preventable Diseases
Hib Meningitis - 4

Other Reportable Diseases

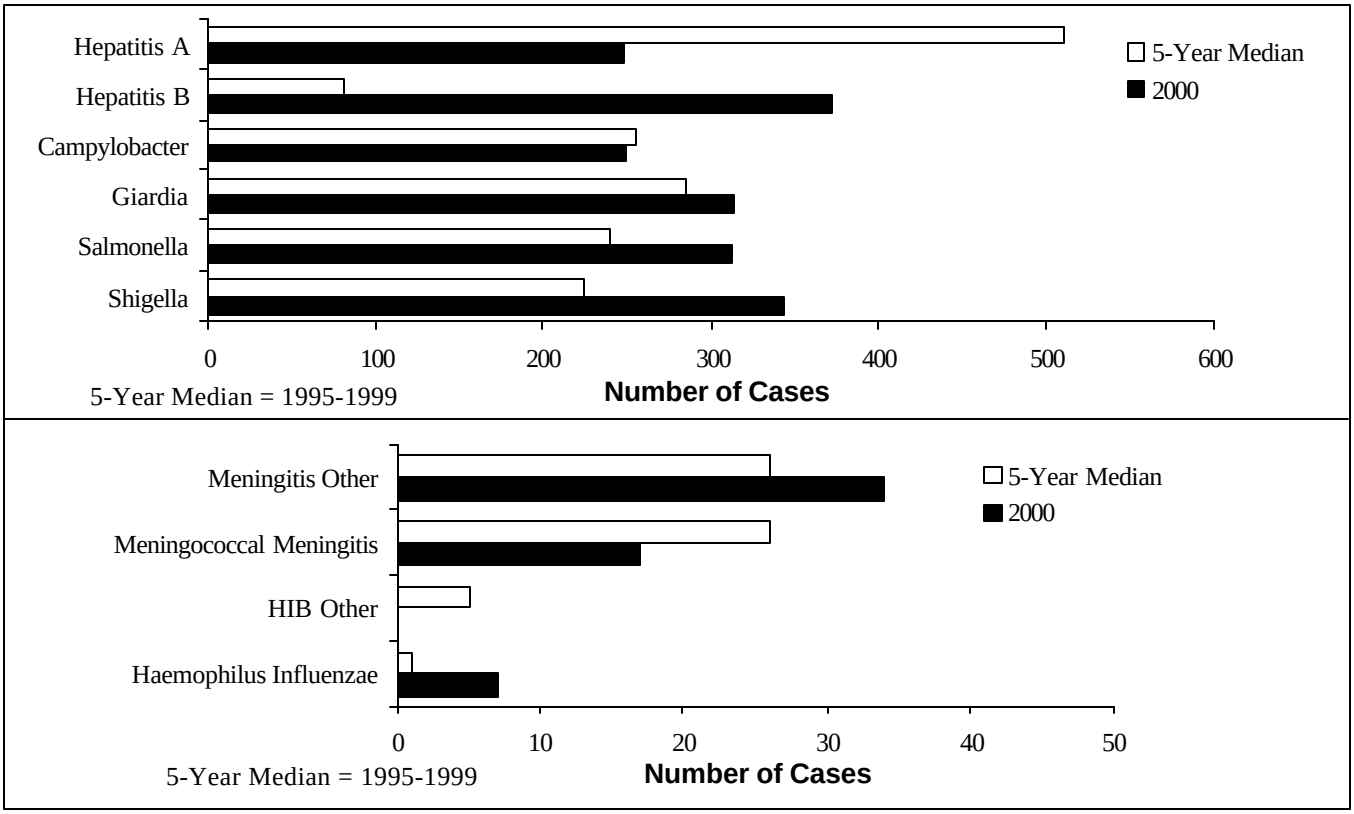
Brucellosis	2
Kawasaki Disease	6
Leprosy	1
Listeria	1
Psittacosis	1
Streptococcal Disease, Invasive, Grp A	15

*Reporting Period Beginning April 2, 2000 and Ending July 1, 2000.
**Totals do not include Kansas City, St. Louis City, St. Louis County, or Springfield
***State and Federal Institutions and Unknown
n/a Data unavailable

Due to data editing, totals may change.

TEAR OUT FOR FUTURE REFERENCE

Disease Reports, January–June 2000 and 5-Year Median



Influenza
From January–June, 2000, 2,414 confirmed influenza cases were reported; with 935 cases reported for the same period in 1999. This is a 699.3% increase from the five-year median for January–June of 302 cases. All health districts showed an increase in influenza cases. We believe patient and physician acceptance and availability of the new rapid testing methods was high, accounting for the increase in laboratory-confirmed cases.

Viral Hepatitis
From January–June, 2000, 248 hepatitis A cases were reported; with 217 cases reported for the same period in 1999. This is a 51.5% decrease from the five-year median for January–June of 511 cases. The majority of the cases are being reported from the Eastern Health District as the result of a community outbreak.

Hepatitis B increased to 373 cases in 2000 from 81 cases in 1999 for the six-month period and is a 145.4% increase from the five-year median for January–June of 152 cases. The majority of the cases are being reported from the Eastern Health District. The Section of Communicable Disease Control and Veterinary Public Health is investigating this increase. It is suspected this may be an artifact of reporting.

Enterics
Campylobacter decreased slightly (2.4%) during this time period to 249 cases in 2000 from 255 cases in 1999. The five-year median for campylobacter is also 255 cases. Salmonella increased slightly to 313 cases in 2000 from 310 cases in 1999. This is an increase of 30.4% over the five-year median of 240 cases. Shigellosis decreased to 343 cases in 2000 from 396 cases in 1999. This is an increase of 52.4% from the five-year median of 225 cases. The majority of the shigellosis cases are being reported from the Northwestern Health District as a result of a community outbreak.

Parasites
Giardiasis increased slightly, to 315 cases in 2000 from 296 cases in 1999 for the January–June time period. This is a 10.1% increase from the five-year median of 286 cases.

Meningitis
Meningococcal meningitis decreased for this period with 17 cases in 2000 from 26 cases in 1999. This is a decrease of 34.6% from the five-year median which is also 26 cases. Meningitis other increased from 26 cases in 1999 to 34 cases in 2000. This is a 30.8% increase from the five-year median of 26.

HIB Disease
Seven cases of *Haemophilus influenzae* were reported for this time period compared to 3 cases in 1999. This is an increase of 600.0% from the five-year median of 1. No cases of HIB other were reported in 2000 or 1999 for this time period. The five-year median is 5 cases of HIB other.

Dr. Eduardo Simoes Named as State Epidemiologist

The Missouri Department of Health has named Eduardo Simoes, M.D., M.Sc., M.P.H., as chief of the Office of Epidemiology and State Epidemiologist effective June 1, 2000.

The State Epidemiologist and Office of Epidemiology staff provide leadership and assist other sectors of the Missouri Department of Health in investigating and evaluating public health issues leading to the development of appropriate policies and/or interventions based on the findings. The office works with division and bureau administrators to develop projects that assist in clarifying various health-related issues and in guiding policy development. The office also provides consultation to local public health agencies and participates in training courses and presentations regarding various aspects of epidemiology and surveillance.

Dr. Eduardo Simoes has been a chronic disease medical epidemiologist in the Department of Health's Office of Surveillance, Research and Evaluation since 1995. In that position, he was responsible for developing and overseeing surveillance and evaluation activities for chronic disease, cancer and the Behavioral Risk Factor Surveillance System. Simoes also serves as Adjunct Assistant Professor for the University of Missouri-Columbia's School of Medicine and Assistant Professor in Community Health for St. Louis University's School of Public Health.

Dr. Simoes began his medical career as a general practitioner in Recife, Brazil, in 1982, and since then has served in numerous health-related management, planning and research positions in Brazil and in the United States. He brings to the position extensive experience with management and analysis of national and statewide surveillance data, strong analytical skills in epidemiology and biostatistics, and experience with epidemiological surveillance development, analysis and translation. In addition to his doctor in medicine degree from Brazil, he holds a master of science in community health for developing countries and a postgraduate diploma in community health from the London School of Hygiene and Tropical Medicine at the University of London, England and a master of public health and master of science in epidemiology from Emory University, Atlanta, Georgia.

Dr. Simoes plans to provide leadership to the department in developing a more evidenced-based approach to public health issues.

Local Public Health Agency Web Sites

Several local public health agencies in Missouri have developed web sites. We have listed below those that we are aware of. We will publish additional web sites as they come to our attention. We encourage you to take time to visit your county's web site to find out what your local public agency has to offer.

- ☞ Clay County Health Center at **http://www.clayhealth.com**
- ☞ Columbia/Boone County Health Department at **http://www.ci.columbia.mo.us/dept/health/index.htm**
- ☞ Jackson County Health Department at **http://www.trumed.org/departments/jchd/JCHealthDepartment.html** (Connected to Truman Medical Center East)
- ☞ Kansas City Health Department at **http://www.kcmo.org/index.htm** (Select Health under the Departments category)
- ☞ Phelps/Maries County Health Department at **http://www.rollanet.org/~rutzmph/**
- ☞ Platte County Health Department at **http://plattecountyhealthdepartment.com**
- ☞ Ripley County Public Health Center at **http://www.ripleycountyhealth.com**
- ☞ St. Louis City Department of Health at **http://stlouis.missouri.org/citygov/health/**
- ☞ Vernon County Health Department at **http://www.vernoncohealthdept.com**

Dr. Denny Donnell Retires as State Epidemiologist

Dr. Denny Donnell retired as State Epidemiologist after serving in that position for 28 years, but he left a legacy of accomplishments. As state epidemiologist, he was responsible for epidemiological investigations and using data in policy making, building programs, and administratively supporting many different bureaus and sections. Dr. Donnell also provided expert medical advice and consultation to health professionals within the department as well as from other agencies, states and universities, often through his participation in numerous advisory committees and work groups.

Dr. Donnell served as managing editor of the *Missouri Epidemiologist* newsletter, and felt that its creation was one of his most meaningful accomplishments during his tenure with the Department of Health. The newsletter is distributed to over 11,500 nurses, physicians, veterinarians, hospital infection control staff and public health officials and is also available in electronic format on the department's web site at **http://www.health.state.mo.us/MoEpi/MoEpi.html**. It serves as a resource point for information about current policies, practices and disease updates.

Dr. Denny Donnell saw many changes during his career in preventive medicine. He was there when the oral polio vaccine was first administered in 1962 and for the first measles vaccine in 1963. He was there when all of Missouri's disease surveillance was kept in one huge ledger book, tabulated and then sent by telegram to the Centers for Disease Control and Prevention every week. He was there when Swine flu was a concern, the dioxin problem surfaced and AIDS first threatened lives.

During his career, Dr. Donnell saw the emergence of many new diseases and the reduction of many others. New diseases such as AIDS, hepatitis C, chlamydia, giardiasis, Legionnaires disease and Lyme disease, became evident. He saw new vaccines developed, as well as improvements to vaccines, such as *Haemophilus influenzae*, hepatitis, MMR, pneumococcal, chickenpox and pertussis. He also saw the reduction of many diseases such as gonorrhea, *Haemophilus influenzae* type b meningitis, malaria, measles, polio, rubella, syphilis, tetanus, tuberculosis and typhoid fever, plus the elimination of smallpox.

Since first deciding to specialize in preventive medicine when he joined the Army, accepting a teaching position with the University of Missouri-Columbia and then joining the Department of Health, Dr. Donnell served as a leader in the study and prevention of diseases. Dr. Donnell taught epidemiology at the University of Missouri-Columbia where he was instrumental in helping to develop a Masters of Science in Public Health program. He was a member of the Council of State and Territorial Epidemiologists.

While Dr. Donnell supervised the communicable disease control programs, he was instrumental in building up the staff and getting communicable disease coordinators placed in the districts. Before then county nurses had to handle all outbreak investigations.

Dr. Donnell believes a dramatic change occurred when the Department of Health achieved cabinet status and moved from a division to a department. This move gave the department more visibility and power to affect improvements in the health of Missourians.

One of Dr. Donnell's career-long goals is now becoming a reality—the linking of public health agencies into one network. His goal many years ago was to get all of the information from the bulky program manuals in three-ring binders onto a computer network. He knew how important it is for public health staff in the local agencies to have the most up-to-date information at their fingertips. This is now becoming a reality through the Internet and MOHSAIC (Missouri Health Strategic Architecture and Information Cooperative), MICA (Missouri Information for Community Assessment), and MOHSIS (Missouri Health Surveillance Information System).

One of Dr. Donnell's long-range visions is a time when all diseases and conditions will be subjected to epidemiological analysis. At this time the department receives disease surveillance from death certificates and hospital discharge records, but these additional data would help develop much better recommendations.

Upon retirement Dr. Donnell will remain active in the American Lung Association, Missouri Public Health Association and Emerging Infections of the Central States. However, now he will have more time for his many hobbies, including antique collecting, writing poetry, reading, and watching birds.

Disease Reporting

Cases of reportable diseases and conditions should be reported promptly to your local health department, or to the Missouri Department of Health at

(800) 392-0272
(during working hours).

The emergency number is
(573) 751-4674
(for after hours, weekends or holidays).

Summary of HIV/AIDS in Missouri, 1999

Robert Hamm, M.D., M.P.H.
Office of Epidemiology

Kurt Kleier
Joann Feltrop
Linda Bell
Office of Surveillance

General Overview of HIV Disease in Missouri

Since 1982, 12,470 HIV-infected Missouri residents (4,139 HIV cases[1] and 8,331 AIDS cases) have been reported to the Missouri Department of Health (MDOH). In 1999, 411 HIV cases and 438 AIDS cases were reported.

Improved antiretroviral therapies have slowed the progress of HIV disease in many infected persons, an achievement reflected in the large decrease in reported AIDS cases from 1996 to 1997 (see Figure 1), and in AIDS-related deaths from 1995 to 1997 (see Figure 2). However, after 1997, these substantial downward trends did not continue. From 1998 to 1999, the number of reported AIDS cases decreased by only 6.4 percent, and the number of AIDS-related deaths, based on provisional data, actually appears to have increased by 2.8 percent. These newer trends likely reflect the limitations associated with current treatment regimens.

Males continue to make up the largest proportion of reported HIV and AIDS cases (83.9% of reported HIV cases and 91.0% of reported AIDS cases). (See Table 1.) However, as described below, certain populations of females appear to be increasingly affected by HIV.

African Americans continue to be disproportionately affected by HIV disease and, significantly, in 1999 for the first time in Missouri, more HIV and AIDS cases were reported in African Americans than in whites. (See Table 2 on page 18.) The rate per 100,000 population for HIV cases reported in 1999 in African Americans (32.3) was 8.1 times the rate in whites (4.0). The disproportionate effect of HIV disease on African Americans is also reflected in the fact that, although African Americans make up approximately 11 percent of Missouri's population, they accounted for 38.4 percent of total AIDS-related deaths in the state in 1999.

(continued on page 18)

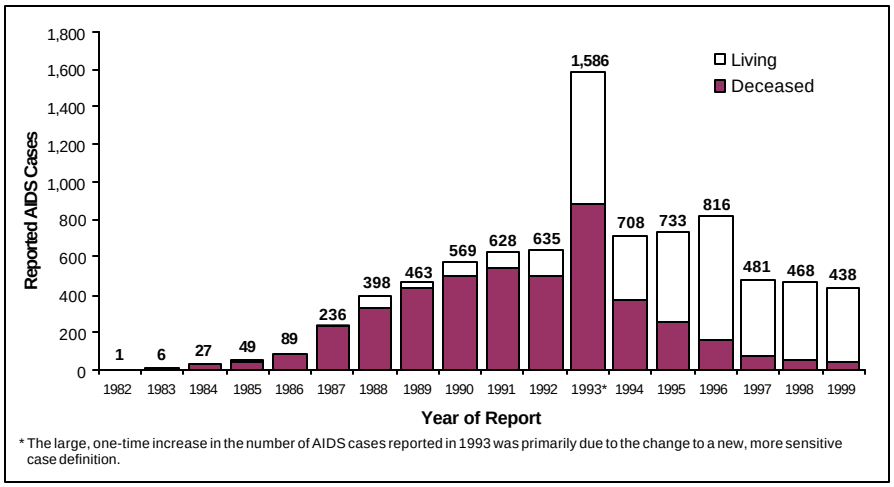


Figure 1. Persons diagnosed with AIDS (living and deceased) by year of report, Missouri, 1982–1999.

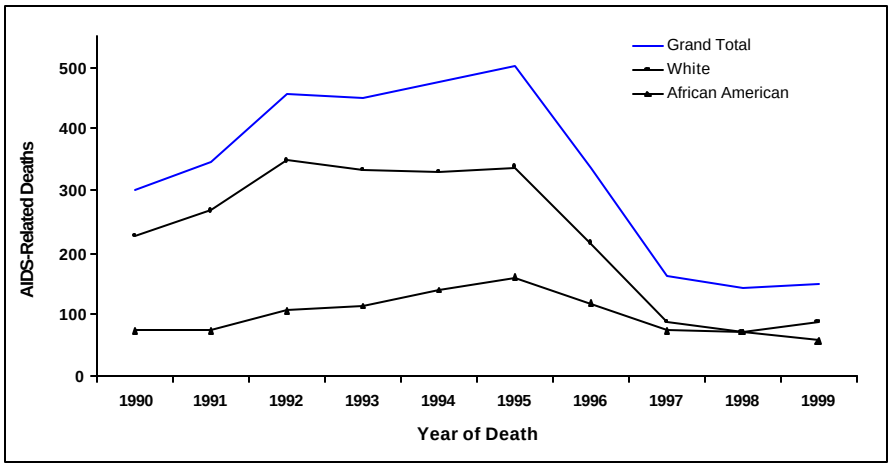


Figure 2. AIDS-related deaths by race/ethnicity and year of death, Missouri, 1990–1999.

Table 1. HIV and AIDS Cases by Gender, Missouri, Reported 1999 and Cumulative Through December 1999.

	HIV Cases				AIDS Cases			
	Reported 1999*		Cumulative		Reported 1999		Cumulative	
Gender								
Males	332	80.8%	3,474	83.9%	362	82.6%	7,581	91.0%
Females	79	19.2%	665	16.1%	76	17.4%	750	9.0%
Total	**411**		**4,139**		**438**		**8,331**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.

(continued from page 17)
(See Figure 2.) Note that in 1998, the number of deaths from AIDS in African Americans (73) was actually greater than the number in whites (72).

The overrepresentation of African Americans among reported HIV and AIDS cases is seen in different areas of the state. Table 3 compares numbers and rates for HIV cases reported in 1999 by race/ethnicity and geographic area.

For Hispanics, the rates for HIV and AIDS cases reported in 1999 were approximately three times those seen in whites. However, the numbers of cases reported in Hispanics (11 HIV cases and 11 AIDS cases in 1999) have been relatively small. For other racial/ethnic groups, the numbers of reported cases have been even smaller. In 1999, 3 HIV cases and 2 AIDS cases were reported in Asian/Pacific Islanders, and 1 HIV case and 1 AIDS case were reported in American Indians. (See Table 2.)

The largest numbers of HIV and AIDS cases, and the highest rates, are in the state's two major metropolitan areas (St. Louis and Kansas City). (See Table 4.) However, HIV infections continue to occur in persons living in rural areas, and HIV and AIDS cases have been reported from most counties in the state. (See Figure 3.)

Having an accurate understanding of current trends in new HIV infections in different at-risk populations is of particular importance for understanding the epidemiology of HIV disease in Missouri. One method for obtaining an estimate of these trends is to examine reported HIV cases (which represent persons more recently infected) by year of initial diagnosis. When this is done

Table 2. HIV and AIDS Cases by Race/Ethnicity, Missouri, Reported 1999 and Cumulative Through December 1999.

	HIV Cases				AIDS Cases			
	Reported 1999*		Cumulative		Reported 1999		Cumulative	
Race/Ethnicity								
White	188	45.7%	2,228	53.8%	209	47.7%	5,553	66.7%
Black	196	47.7%	1,760	42.5%	215	49.1%	2,563	30.8%
Hispanic	11	2.7%	93	2.2%	11	2.5%	164	2.0%
Asian	3	0.7%	15	0.4%	2	0.5%	19	0.2%
American Indian	1	0.2%	11	0.3%	1	0.2%	31	0.4%
Unknown	12	2.9%	32	0.8%	0	0.0%	1	0.0%
Total	**411**		**4,139**		**438**		**8,331**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.

Table 3. Reported HIV Cases and Rates by Race/Ethnicity and Geographic Area, Missouri, 1999

	Total		White, Non-Hispanic		Black, Non-Hispanic		Hispanic	
	Cases	Rate**	Cases	Rate**	Cases	Rate**	Cases	Rate**
St. Louis City†	130	38.3	45	29.8	76	42.8	1	17.5
St. Louis County†	55	5.5	22	2.7	30	18.4	1	7.6
Kansas City†	102	22.7	48	15.9	46	34.9	6	5.9
Outstate Total†	87	2.4	65	1.9	18	13.4	2	4.1
MO Correctional Facilities††	37	--	10	--	26	--	1	--
Missouri	**411**	**7.6**	**188**	**4.0**	**196**	**32.3**	**11**	**12.7**

** Per 100,000 population, based on 1998 population estimates.
† Does not include persons living in correctional facilities at the time of diagnosis.
†† Includes state, county and local correctional facilities.

Table 4. Summary of Reported HIV and AIDS Cases, Missouri, 1982–1999

	HIV Cases					AIDS Cases				
	Reported 1999*			Cumulative		Reported 1999			Cumulative	
	Case	%	Rate**	Case	%	Case	%	Rate***	Case	%
Geographic Area										
St. Louis City†	130	(31.6%)	38.3	1,222	(29.5%)	147	(33.6%)	43.3	2,315	(27.9%)
St. Louis County†	55	(13.4%)	5.5	535	(12.9%)	68	(15.5%)	6.8	1,287	(15.6%)
Kansas City†	102	(24.8%)	22.7	1,061	(25.6%)	112	(25.6%)	24.9	2,370	(28.5%)
Outstate†	87	(21.2%)	2.4	1,029	(24.9%)	102	(23.3%)	2.8	2,157	(25.6%)
Missouri Correctional Facilities††	37	(9.0%)	--	292	(7.1%)	9	(2.1%)	--	202	(2.4%)
Missouri Total	**411**	**(100.0%)**	**7.6**	**4,139**	**(100.0%)**	**438**	**(100.0%)**	**8.1**	**8,331**	**(100.0%)**

*HIV cases reported during 1999 which remained HIV cases at the end of that year.
**Per 100,000 population, based on 1998 population estimates.
†Does not include persons living in correctional facilities at the time of diagnosis.
††Includes state, county and local correctional facilities.

for HIV cases reported in the state in recent years, the overall trend in diagnosed cases has been generally downward. More specifically, as shown in Figure 4, the trends in diagnosed cases from three of the four major groups at risk for HIV infection have been generally downward (the exception has been cases reported from heterosexual contacts).

While the overall downward trend in diagnosed HIV cases could, at least in part, be due to changes in the HIV testing behaviors of at-risk persons, or to changes in HIV testing practices by providers, it also may represent an overall decrease in recent years in the number of new HIV infections (HIV incidence) in Missouri. However, it must be strongly emphasized that even if there has been an overall decrease in new HIV infections in the state, there are still substantial numbers of persons who are being infected each year. Approximately 480 Missourians, the largest proportion of whom were men who have sex with men, were diagnosed with HIV infection in 1999, and the actual number of new infections occurring annually in the state may be appreciably higher. Also, the fact that the number of diagnosed heterosexual contact HIV cases has not been decreasing is an additional cause for concern.

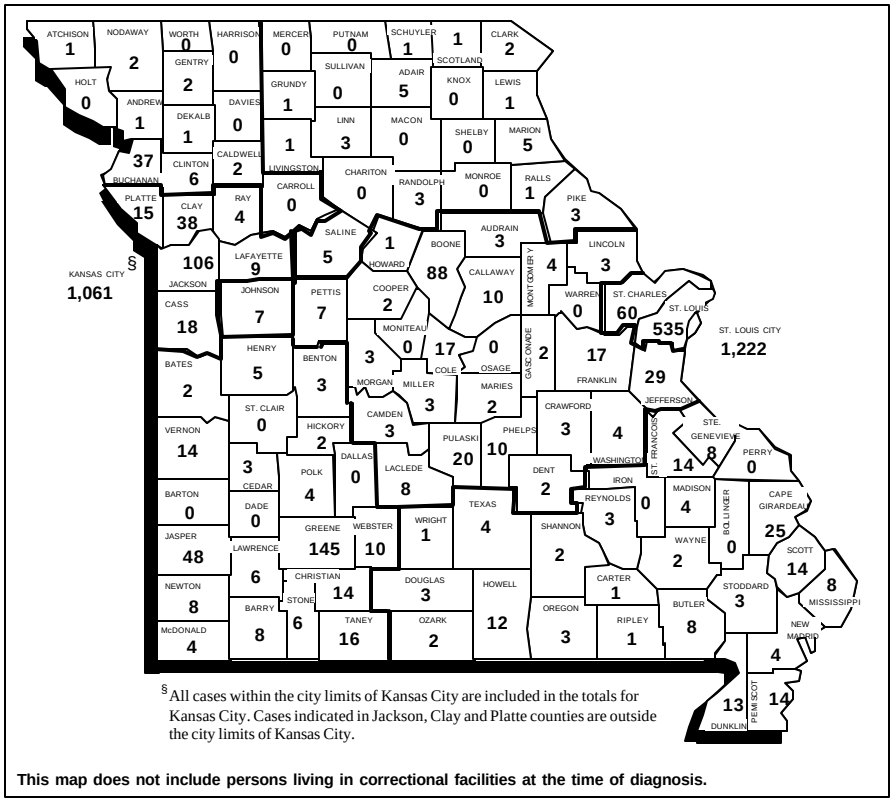


Figure 3. Reported HIV cases by county, Missouri, cumulative through 1999.

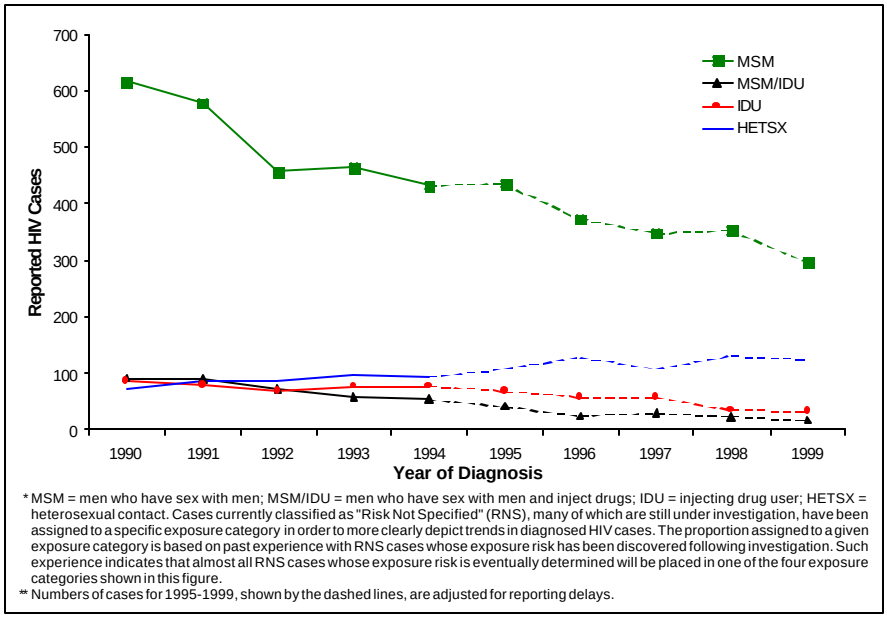


Figure 4. Reported HIV Cases by Selected Exposure Categories* and Year of Diagnosis**, Missouri, 1990–1999

Summary of HIV Disease (and Related Issues) in the Major At-Risk Populations

A. MEN WHO HAVE SEX WITH MEN

Although the annual number of newly diagnosed HIV cases among men who have sex with men (MSM) has been decreasing (see Figure 4), the largest numbers of reported HIV (and AIDS) cases continue to come from this population (192 HIV cases and 256 AIDS cases were reported in MSM in 1999). (See Table 5 on page 20.)

HIV disease is a problem among both white and African American MSM. More cases have been reported from white MSM (1,511 HIV cases and 4,188 AIDS cases) than from African American MSM (895 HIV cases and 1,599 AIDS cases). (See Table 6 on page 20.) However, given the fact that there are likely many more white MSM than African American MSM in Missouri, African American MSM appear to be experiencing higher rates of HIV infection.

Hispanic MSM have accounted for 57 HIV cases (2.3% of total MSM HIV

(continued on page 20)

Table 5. HIV and AIDS Cases by Exposure Category, Missouri, Reported 1999 and Cumulative Through December 1999.

	HIV Cases				AIDS Cases			
	Reported 1999*		Cumulative		Reported 1999		Cumulative	
Adult/Adolescent								
Men Who Have Sex With Men	192	46.8%	2,493	60.8%	256	58.7%	5,928	71.7%
Men Who Have Sex With Men and Inject Drugs	11	2.7%	261	6.4%	31	7.1%	748	9.0%
Injecting Drug Users	20	4.9%	381	9.3%	38	8.7%	597	7.2%
Heterosexual Contact	84	20.5%	649	15.8%	73	16.7%	639	7.7%
Hemophilia/Coagulation Disorder	1	0.2%	28	0.7%	1	0.2%	143	1.7%
Blood Transfusion or Tissue Recipient	1	0.2%	12	0.3%	3	0.7%	96	1.2%
Risk Not Specified	101	24.6%	275	6.7%	34	7.8%	116	1.4%
Adult/Adolescent Subtotal	**410**	**100.0%**	**4,099**	**100.0%**	**436**	**100.0%**	**8,267**	**100.0%**
Pediatric (<13 years old)								
Mother With/At Risk of HIV Infection	1	100.0%	33	82.5%	2	100.0%	44	68.8%
Hemophilia/Coagulation Disorder	0	0.0%	5	12.5%	0	0.0%	14	21.9%
Blood Transfusion or Tissue Recipient	0	0.0%	0	0.0%	0	0.0%	5	7.8%
Risk Not Specified	0	0.0%	2	5.0%	0	0.0%	1	1.6%
Pediatric Subtotal	**1**	**100.0%**	**40**	**100.0%**	**2**	**100.0%**	**64**	**100.0%**
Total	**411**		**4,139**		**438**		**8,331**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.

(continued from page 19)

cases), and 113 AIDS cases (1.9% of total MSM AIDS cases).

Figure 5 shows reported HIV cases in white and African American MSM by year of diagnosis. For total HIV cases in MSM, as well as for white MSM cases and African American MSM cases, the annual numbers of diagnosed cases have been generally decreasing. The annual number of diagnosed HIV cases in Hispanic MSM (not shown in the figure) has remained low in recent years (less than 10 per year), and has not shown noticeable upward or downward trends.

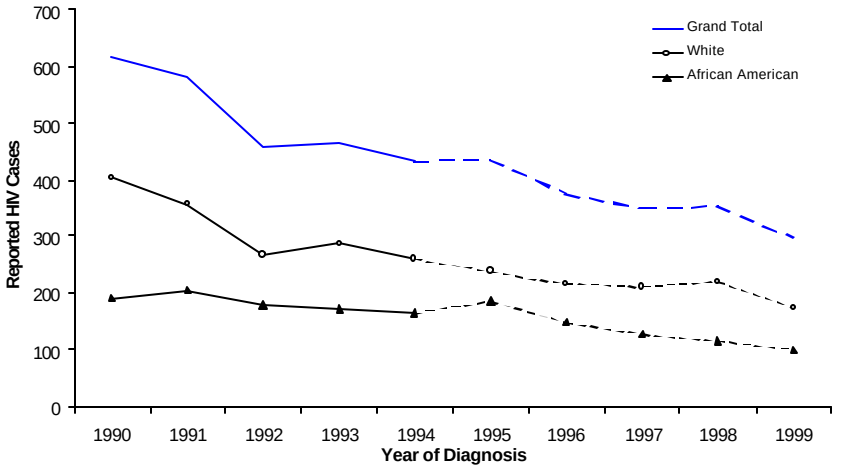
Most MSM who become infected with HIV likely do so while in their twenties or thirties. African American MSM may, in general, be infected at somewhat younger ages compared to white MSM.

The majority of HIV-infected MSM, and especially HIV-infected African American MSM, were residing in St. Louis City, St. Louis County, or Kansas City at the time of diagnosis. Seventy-eight percent of reported HIV cases in MSM were diagnosed in men living in either St. Louis City, St. Louis County,

Table 6. HIV and AIDS Cases in Men Who Have Sex With Men by Race/Ethnicity, Missouri, Reported 1999 and Cumulative Through December 1999.

	HIV Cases				AIDS Cases			
	Reported 1999*		Cumulative		Reported 1999		Cumulative	
Race/Ethnicity								
White	120	62.5%	1,511	60.6%	137	53.5%	4,188	70.6%
Black	55	28.6%	895	35.9%	116	45.3%	1,599	27.0%
Hispanic	8	4.2%	57	2.3%	2	0.8%	113	1.9%
Other/Unknown	9	4.7%	30	1.2%	1	0.4%	28	0.5%
Total	**192**		**2,493**		**256**		**5,928**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.



* Numbers of cases for 1995-1999, shown by the dashed lines, are adjusted for reporting delays.

Figure 5. Reported HIV cases in men who have sex with men by race/ethnicity and year of diagnosis*, Missouri, 1990–1999

or Kansas City; with 68.8 percent of white MSM HIV cases, 95.0 percent of African American MSM HIV cases, and 83.6 percent of Hispanic MSM HIV cases being from one of these three locations. Among the outstate counties, 15 African American MSM HIV cases have been reported from Boone County, and 14 other outstate counties have each reported from 1–5 cases. White MSM HIV cases have been more widely distributed in the outstate counties, with 10 counties (Boone, Buchanan, Cape Girardeau, Cass, Franklin, Greene, Jasper, Jefferson, St. Charles, and St. Francois) each reporting 10 or more cases, and 60 other outstate counties each reporting from 1–9 cases.[2–3]

In addition to the surveillance data described above, other sources of information are available that provide increased understanding of certain behaviors and perceptions of Missouri MSM which can place them at risk of acquiring HIV infection.

HIV Testing Survey II (HITS II) in MSM in Gay Bars

In 1998, the HIV Testing Survey II (HITS II), a behavioral study of persons at-risk for HIV infection in Missouri, was conducted by the Saint Louis University School of Public Health. It included interviews with 102 MSM in gay bars in St. Louis, Kansas City, and Springfield. The results[4] indicate the continuing presence, in the MSM populations surveyed, of behaviors associated with HIV transmission.

Of those MSM participants responding to the survey, 63.7 percent reported having other sexual partners besides a primary partner (of those reporting other partners, the median number of other partners was 3). Of those respondents with a primary male partner (66.7% of the total), 29.4 percent reported that a condom was never used, and 32.4 percent reported that a condom was always used, when having receptive sex with the primary partner.

The results also indicate that non-injectable illicit drug use is a behavior engaged in by some MSMs. Of the 102 individuals from gay bars who were surveyed, 43.1 percent reported that they had used some form of non-injectable illicit drug in the last past twelve months.

More encouraging were the results which showed that a relatively high percentage (78.4%) of the MSM participants surveyed had been tested at least once for HIV, and that a majority (62.5%) were being tested on a regular basis.

Other Sexually Transmitted Diseases (STDs) in MSM

Reports of increases in bacterial sexually transmitted diseases (STDs) among MSM in places such as San Francisco[5] and King County, Washington[6], apparently associated with an increase in unsafe sexual practices among MSM in these locations, have been of significant concern because such unsafe practices could also lead to increases in HIV incidence.

In Missouri, data from cases of bacterial STDs reported during recent years do not provide evidence that any substantial outbreaks of these STDs have been occurring among MSM in the state. However, the potential occurrence of future outbreaks in this population must continue to be monitored.

The Centers for Disease Control and Prevention (CDC) has stated that "the substantial reduction in sexual risk behaviors among MSM and the decreases in rectal gonorrhea during the 1980s and early 1990s cannot be assumed to be maintained indefinitely. The availability of ART [increasingly effective antiretroviral therapy] and the possible perception of lower risk for infection from persons receiving ART may lead to misunderstandings and complacency toward safe-sex messages."[5] Reinforcing this concern are results from the HITS II study which indicate that in Missouri some MSM are now less careful than before with regard to risky behaviors because of their awareness of more effective HIV treatments. The MSM participants in the study were asked to respond to the statement: "Sometimes I am less careful about being safe with sex or drugs because I know there are good treatments for HIV now." Of those responding, 5.6 percent strongly agreed with the statement, and another 11.1 percent indicated mild agreement. The participants were also asked to respond to the related statement: "I'm less concerned about getting HIV than I used to be because there are good treatments now." Of those responding, 8.9 percent strongly agreed, and another 23.3 percent indicated mild agreement.

B. HETEROSEXUAL CONTACTS

In 1999, 84 HIV cases and 73 AIDS cases were reported in heterosexual contacts in Missouri. (See Table 5.) Of the 649 total reported HIV cases in heterosexual contacts, 300 (46.2%) were in African American females and 177 (27.3%) in white females. Numbers of reported heterosexual contact HIV cases in males were much smaller: 112 (17.3%) in African American males, and 40 (6.2%) in white males. (See Table 7 on page 22.) Heterosexual contact is the predominant way that women in Missouri are infected with HIV (approximately three out of every four adult/adolescent women infected with HIV acquired their infection through heterosexual contact). Among more recently infected women, a higher proportion are being infected through this mode of transmission.

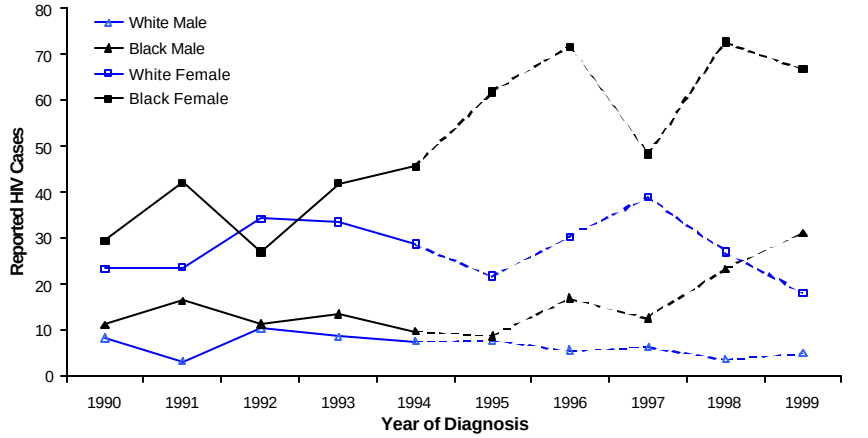
African Americans are very disproportionately represented among reported HIV and AIDS cases in heterosexual contacts. Of the 649 heterosexual contact HIV cases reported in Missouri, 412 (63.5%) were in African Americans, compared to 217 (33.4%) in whites. Hispanics have accounted for 13 (2.0%) heterosexual contact HIV cases. Very

(continued on page 22)

Table 7. HIV and AIDS Cases in Heterosexual Contacts by Race/ Ethnicity and Gender, Missouri, Reported 1999 and Cumulative Through December 1999.

Race/Ethnicity and Gender	HIV Cases Reported 1999*		HIV Cases Cumulative		AIDS Cases Reported 1999		AIDS Cases Cumulative	
Males								
White	3	3.6%	40	6.2%	4	5.5%	75	11.7%
Black	21	25.0%	112	17.3%	16	21.9%	75	11.7%
Other/Unknown	1	1.2%	6	0.9%	1	1.4%	6	0.9%
Females								
White	11	13.1%	177	27.3%	20	27.4%	212	33.2%
Black	46	54.8%	300	46.2%	30	41.1%	259	40.5%
Other/Unknown	2	2.4%	14	2.2%	2	2.7%	12	1.9%
Total	**84**		**649**		**73**		**639**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.



* Numbers of cases for 1995-1999, shown by the dashed lines, are adjusted for reporting delays.

Figure 6. Reported HIV cases in heterosexual contacts by race/ethnicity, gender and year of diagnosis*, Missouri, 1990–1999.

(continued from page 21)

few heterosexual contact HIV (or AIDS) cases have been reported from persons in other racial/ethnic groups.

In contrast to the situation in MSM, the annual number of diagnosed HIV cases in heterosexual contacts in Missouri has been generally increasing. (See Figure 4.) This general upward trend has been primarily due to the overall upward trend in African American female cases (although there is recent evidence of possible plateauing in the annual number of diagnosed cases in this population). In addition, the annual number of diagnosed cases in African American males has been increasing for three of the past four years. In contrast, diagnosed cases in white females and white males have not shown noticeable upward or downward trends in recent years, and the overall number of cases in white males has been small. (See Figure 6.)

The largest proportion of heterosexual contact cases were probably initially infected while in their twenties; but teenagers (especially females) are also being infected through heterosexual transmission. Of the 300 African American female heterosexual contact HIV cases, 49 (16.3%) were diagnosed in teenagers; of the 177 cases in white females, 17 (9.6%) were diagnosed in teenagers. Less than 5 percent of heterosexual contact HIV cases in males were diagnosed in teenagers.

Of reported HIV cases in heterosexual contacts, 66.1 percent were diagnosed in persons living in either St. LouisCity, St. Louis County, or Kansas City; with 77.4 percent of African American male cases and 85.0 percent of African American female cases, but only 15.8 percent of white male cases and 39.4 percent of white female cases, being from one of these three locations. (Approximately 78 percent of the state's African American population, and 27 percent of the white population, reside in either St. Louis City or County, or Kansas City.) Among the outstate counties , 8 African American heterosexual contact HIV cases have been reported from Boone County, 7 from Greene County, 4 from Mississippi County, and 4 from Pulaski County. Twenty-two other outstate counties have each reported from 1–3 African American cases. White heterosexual contact HIV cases have been more widely distributed in the state. Thirteen white cases have been reported from Greene County, 11 from Jasper County, 9 from St. Charles County, 7 from Jefferson County, and 6 from Howell County. Forty-six other outstate counties have each reported from 1–5 white cases. None of the outstate counties are showing evidence of upward trends in diagnosed HIV cases in either white or African American heterosexual contacts.[2–3]

Additional information is available on the occurrence of particular behaviors among certain heterosexual populations in Missouri which can result in increased risk of acquiring HIV infection.

HIV Testing Survey II (HITS II) in (Heterosexual) STD Clinic Patients

The 1998 HITS II study described above also included interviews with 95 STD clinic patients in St. Louis, Kansas City, and Springfield. The results[4] provide information on the behaviors occurring in these specific populations of heterosexuals who are clearly at high risk for infections transmitted through

sexual contact. The study findings indicate the continuing presence in these populations of behaviors associated with transmission of HIV and other STDs.

Of male participants, 75.0 percent reported having other sexual partners besides their primary partner; the median number of other partners was 2. By contrast, the majority of female participants (61.5%) reported no other current sexual partners besides their primary partner. When having vaginal sex with the primary partner, 31.7 percent of male respondents and 38.5 percent of female respondents reported never using a condom. Of those who reported having sexual intercourse with another partner(s) beside a primary partner, only 27.9 percent of male respondents and 33.3 percent of female respondents reported always using a condom.

Of all STD clinic respondents, 73.7 percent stated they had previously been tested for HIV, but only 41.4 percent indicated they were being tested regularly. Given the increasing importance of heterosexual HIV transmission in Missouri, the fact that a large percentage of these heterosexual STD clinic patients are not being tested on a regular basis may indicate the need to increase HIV counseling and testing efforts among this population.

The results also indicate that some of the respondents are now less careful than before with regard to risky behaviors because of their awareness of more effective HIV treatments. Participants were asked to respond to the statement: "Sometimes I am less careful about being safe with sex or drugs because I know there are good treatments for HIV now." Of those responding, 17.9 percent strongly agreed with the statement, and another 12.6 percent indicated mild agreement. The participants were also asked to respond to the related statement: "I'm less concerned about getting HIV than I used to be because there are good treatments now." Of those responding, 21.1 percent strongly agreed, and another 21.1 percent indicated mild agreement.

Finally, the results indicate that a noticeable proportion of the STD clinic respondents have used non-injectable illicit drugs. Of the 95 respondents, 41 (43.2%) reported that they had used some form of these drugs in the past 12 months.

1999 Youth Risk Behavior Survey (YRBS)

The 1999 Youth Risk Behavior Survey (YRBS) was administered to 1,652 students in 23 public high schools in Missouri during the spring of 1999, and the results are believed to be representative of all students in grades 9–12 in the state. Results[7] indicate the continuing presence in Missouri teenagers of behaviors associated with the transmission of STDs (including HIV).

Of those high school students surveyed, 56.8 percent reported having had sexual intercourse (including 70.5 percent of those >18 years of age), and 19.5 percent reported having had sexual intercourse with >4 people. Of those who reported having sexual intercourse during the past three months (41.6% of the total), 25.4 percent drank alcohol or used drugs before their last sexual intercourse, and only 59.8 percent used a condom during their last episode of intercourse.

C. INJECTING DRUG USERS (HETEROSEXUAL AND MSM)

Needle sharing among injecting drug users (IDUs) has been a less common means of transmitting HIV in Missouri compared to the situation in a number of other states. However, (heterosexual) IDUs make up 9.3 percent of the state's reported HIV cases and 7.2 percent of reported AIDS cases, and men who have sex with men and inject drugs (MSM/IDU) make up 6.4 percent of reported HIV cases and 9.0 percent of reported AIDS cases. (See Table 5.)

The annual number of diagnosed HIV cases in both IDUs and MSM/IDUs has generally been declining (see Figure 4), and may represent a decrease in the number of new HIV infections (HIV incidence) in persons in these exposure categories. In 1999, 20 HIV cases and 38 AIDS cases were reported in IDUs, and 11 HIV cases and 31 AIDS cases were reported in MSM/IDUs. (See Table 5.)

Males, and African Americans, are disproportionately represented among reported HIV cases in IDUs (see Table 8 on page 24). Males make up 70.3 percent of the 381 total reported HIV cases in IDUs (including 70.9 percent of all white IDU cases and 68.8 percent of all African American IDU cases). African Americans (who comprise about 11 percent of Missouri's population) make up 50.4 percent of total reported HIV cases in IDUs, whites account for 45.9 percent, and Hispanics 2.6 percent (10 cases, 8 of which were in males).

African American men appear disproportionately represented among reported HIV cases in MSM/IDUs (see Table 9 on page 24). African American men make up 33.7 percent of the 261 total reported HIV cases in MSM/IDUs, and white men account for 63.6 percent.

The largest proportion of IDU and MSM/IDU cases were probably initially infected while in their later twenties and thirties.

Of reported HIV cases in IDUs, 62.0 percent were diagnosed in persons living in either St. Louis City, St. Louis County, or Kansas City; with 92.5 percent of African American cases and 31.5 percent of white cases being from one of these three locations. Among the outstate counties, 9 have each reported 1–2 African American IDU HIV cases. Compared to cases in African Americans, white IDU HIV cases have been more widely distributed in the state. Sixteen white cases have been reported from Greene County, and 6 cases have been reported from each of three other outstate counties (Boone, Jasper, and

(continued on page 24)

Table 8. HIV and AIDS Cases in Injecting Drug Users by Race/ Ethnicity and Gender, Missouri, Reported 1999 and Cumulative Through December 1999.

Race/Ethnicity and Gender	HIV Cases Reported 1999*		HIV Cases Cumulative		AIDS Cases Reported 1999		AIDS Cases Cumulative	
Males								
White	7	35.0%	124	32.5%	6	15.8%	190	31.8%
Black	7	35.0%	132	34.6%	12	31.6%	198	33.2%
Other/Unknown	0	0.0%	12	3.1%	2	5.3%	20	3.4%
Females								
White	2	10.0%	51	13.4%	5	13.2%	78	13.1%
Black	4	20.0%	60	15.7%	12	31.6%	105	17.6%
Other/Unknown	0	0.0%	2	0.5%	1	2.6%	6	1.0%
Total	**20**		**381**		**38**		**597**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.

Table 9. HIV and AIDS Cases in Men Who Have Sex With Men and Inject Drugs by Race/Ethnicity, Missouri, Reported 1999 and Cumulative Through December 1999.

Race/Ethnicity	HIV Cases Reported 1999*		HIV Cases Cumulative		AIDS Cases Reported 1999		AIDS Cases Cumulative	
White	6	54.5%	166	63.6%	18	58.1%	502	67.1%
Black	5	45.5%	88	33.7%	12	38.7%	228	30.5%
Hispanic	0	0.0%	4	1.5%	1	3.2%	13	1.7%
Other/Unknown	0	0.0%	3	1.1%	0	0.0%	5	0.7%
Total	**11**		**261**		**31**		**748**	

* HIV cases reported during 1999 which remained HIV cases at the end of that year.

(continued from page 23)
St. Charles). Thirty-five additional outstate counties have each reported from 1–3 cases.[2–3]

Of reported HIV cases in MSM/IDUs, 66.8 percent were diagnosed in men living in either St. Louis City, St. Louis County, or Kansas City; with 87.5 percent of African American cases and 57.4 percent of white cases being from one of these three locations. Among the outstate counties, seven have each reported one African American MSM/ IDU HIV case. White MSM/IDU HIV cases have been more widely distributed in the outstate counties. Eleven white cases have been reported from Greene County; 26 other outstate counties have each reported from 1–4 cases.[2–3]

Additional information is available on the occurrence of particular behaviors among certain IDU populations in Missouri which can result in increased risk of acquiring HIV infection.

HIV Testing Survey II (HITS II) in IDUs in Drug Treatment

The 1998 HITS II study described above also included interviews with 98 IDUs in drug treatment facilities in St. Louis, Kansas City, and Springfield. The findings of the study[4] provide information on the behaviors occurring in these predominantly heterosexual populations of IDUs. The results indicate the continuing presence in these populations of behaviors associated with transmission of HIV and other STDs.

Of male participants, 47.5 percent reported having other sexual partners besides their primary partner; the median number of other partners was 3. Of female participants, 51.4 percent reported having other sexual partners besides their primary partner; the median number of other partners was 4. When having vaginal sex with the primary partner, 70.5 percent of male respondents and 40.5 percent of female respondents reported never using a condom. Of those who reported having sexual intercourse with another partner(s) beside a primary partner, only 35.5 percent of male respondents and 35.0 percent of female respondents reported always using a condom.

Of all IDU respondents, 88.8 percent stated they had previously been tested for HIV, but only 43.7 percent indicated they were being tested regularly. The fact that a large percentage of these individuals are not being tested on a regular basis may indicate the need to increase HIV counseling and testing efforts among IDU populations.

Results from HITS II also indicate that non-injectable illicit drug use is a frequent behavior among the IDUs in the study. Of the 98 IDUs surveyed (all of whom reported using some form of injectable drug in the past twelve months), 70 (71.4%) reported also using cocaine, and 53 (54.1%) reported using crack.

In addition, the results provided descriptions of specific high-risk behaviors associated with injecting drug use and transmission of HIV. Of the 98 IDUs surveyed, 70 (71.4%) indicated that they do not share needles, 16 (16.3%) indicated that they share needles more than half of the time, and 10 (10.2%) indicated that they share needles half of the time or less. The relatively high proportion of respondents who state they do not share needles might be reflective of a more general trend among IDUs in the state, and could possibly be related to the fact that IDUs in Missouri have made up a smaller proportion of reported

HIV and AIDS cases than is seen in a number of other states. However, it remains a significant concern that almost 30 percent of the IDUs in the survey reported sharing needles, and points to the ongoing need for prevention services in IDU populations.

Finally, results from the HITS II study indicate that there are some IDUs who are less careful than before with regard to risky behaviors because of their awareness of more effective HIV treatments. The IDUs interviewed in the study were asked to respond to the statement: "Sometimes I am less careful about being safe with sex or drugs because I know there are good treatments for HIV now." Of those responding, 34.0 percent strongly agreed with the statement, and another 16.5 percent indicated mild agreement. The participants were also asked to respond to the related statement: "I'm less concerned about getting HIV than I used to be because there are good treatments now." Of those responding, 36.1 percent strongly agreed, and another 18.6 percent indicated mild agreement.

D. PERINATAL HIV TRANSMISSION

The Missouri Department of Health has knowledge of 271 infants born from 1993–1999 to mothers who were infected with HIV and who were Missouri residents at the time of the birth. Of these 271 infants (termed HIV-exposed infants), 31 (11.4%) were subsequently found to be infected with HIV as a result of perinatal (mother-to-infant) transmission; 240 (88.6%) were not infected.

The proportion of HIV-exposed infants who became infected was noticeably less for those born during the period from 1995–1998 compared to those born during the earlier period from 1993–1994 (5.9% vs. 27.5%). This difference likely reflects the use, starting in mid- to late-1994, of zidovudine (ZDV, AZT) treatment to reduce the risk of perinatal HIV transmission. During 1999, 33 HIV-infected mothers are known to have given birth; none (0.0%) of their infants appear to have been infected.

African Americans have been disproportionately represented among HIV-exposed infants. Of the 202 HIV-exposed infants born from 1995–1999 (the period during which specific guidelines for the use of antiretroviral drugs to reduce perinatal HIV transmission risk have been in place), 24.3 percent were white, 71.3 percent were African American, 2.5 percent were Hispanic, and 2.0 percent were of other/unknown race/ethnicity. Of the 49 white HIV-exposed infants born during this period, 4 (8.2%) were subsequently found to be infected with the virus; of the 144 African American HIV-exposed infants, 8 (5.6%) were subsequently found to be infected.

Of the 202 HIV-exposed infants born from 1995–1999, the largest number, 71 (35.1%), were from St. Louis City, followed by 65 (32.2%) from the outstate area. The largest number of HIV-exposed infants subsequently found to be infected (7) were from the outstate area, followed by St. Louis City (3).

From 1995-1999, only 3.9 percent of infants whose mothers were diagnosed as HIV infected before or during pregnancy became infected, compared to 21.7 percent of infants whose mothers were not diagnosed until after the postpartum period. Early diagnosis and treatment of HIV-infection in pregnant women is clearly a key strategy for preventing perinatal HIV transmission.

Comments:

HIV disease continues to be a very significant problem in Missouri.

- Almost 500 Missourians were diagnosed with HIV infection in 1999, and the actual number of new infections occurring annually in the state may be appreciably higher. The infection remains incurable and deadly. Current treatments, while slowing the progress of the disease for many persons, are not a cure, are associated with significant adverse reactions, do not remain effective over time in many persons, and are expensive. *Emphasis must continue to be placed on prevention of new infections.*
- Prevention efforts must be directed to several at-risk groups:

  1) **MSM.** Although the numbers of newly diagnosed HIV cases in MSM have been generally decreasing in recent years, this at-risk population continues to easily account for the majority of reported HIV and AIDS cases in Missouri. Behavioral studies appear to indicate the ongoing presence of risky behaviors in many MSM , and reports of increases in risky behaviors in MSM in other parts of the county point to the need for ongoing prevention efforts directed toward the MSM population.

  2) **Certain Populations of Heterosexuals.** The annual number of diagnosed HIV cases in heterosexual contacts has, in general, been increasing in recent years. An estimated 125 heterosexual contacts were diagnosed with HIV infection in 1999, and the actual number of new infections occurring each year in this population may be considerably higher. Behavioral studies indicate the continuing occurrence of risky sexual behaviors, not only in traditional high risk populations (such as heterosexual STD clinic patients), but also in many Missouri teenagers.

  3) **Persons Who Inject Illicit Drugs.** While HIV transmission associated with injecting drug use has not been as large a problem in Missouri as in some other states, Missouri IDUs continue to be infected through sharing of injection equipment (and through risky sexual behaviors). The continuing presence of high risk sexual and needle-sharing behaviors among Missouri IDUs is indicated by behavioral studies, and these findings confirm the ongoing risk for transmission of HIV (and other sexual and bloodborne pathogens) in IDU populations in the state.

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4) **Infants of HIV-Infected Mothers.** The number of Missouri infants infected with HIV through perinatal (mother-to-infant) transmission has been very low in recent years. However, the potential for such transmission, which is almost always preventable, remains. It is crucial that HIV-infected pregnant women be identified (preferably before they become pregnant) and offered appropriate treatment for their own disease and to reduce the risk of transmission to their child. Additionally, it must be emphasized that the best way to prevent perinatal HIV transmission is to prevent the occurrence of HIV infection in women of childbearing age.

- In each of the four at-risk groups just mentioned, African Americans appear clearly overrepresented. The disproportionate impact of HIV disease in certain African American populations requires that particular attention be given to prevention efforts developed to assist these individuals.
- Medical providers should routinely conduct appropriate risk assessments on their patients, provide counseling and any necessary referrals for those who are at risk for HIV infection, and strongly encourage all at-risk persons to be tested for HIV. For individuals who continue to engage in risky behaviors, ongoing periodic testing (and ongoing risk reduction counseling) should be provided.
- All medical facilities, including clinics and physicians' offices, should have written protocols in place for managing occupational exposures to HIV (and other bloodborne pathogens). These protocols should be periodically updated to remain consistent with current guidelines.[8–11]
- Medical providers should be aware of management options, and current recommendations,[12] for situations in which individuals have non-occupational (sexual or injecting-drug-use) exposure to HIV.
- Medical providers should promptly report, as required by Missouri law,[13–14] all cases of HIV infection/AIDS to public health officials. Providers in St. Louis City and St. Louis County should report cases to the St. Louis City Department of Health and Hospitals at (314) 658-1159. Providers in the five-county Kansas City metropolitan area should report to the Kansas City Health Department at (816) 983-4200. All other providers should report to MDOH's Office of Surveillance at (573) 751-6463.
- Medical providers should also be aware of current guidelines[15] for the screening, diagnosis, and treatment of sexually transmitted diseases (STDs) such as chlamydia, gonorrhea, syphilis, and trichomoniasis. The presence of these conditions is known to increase HIV infectivity and HIV susceptibility, and the early detection and treatment of curable STDs should be a major component of HIV prevention programs.[16] In Missouri, excellent educational opportunities for physicians and other clinicians in the diagnosis and treatment of STDs are available through the St. Louis STD/HIV Prevention and Training Center. (314/747-0294 or http://www.umsl.edu/services/itc/std_ptc.html)
- Ongoing efforts are needed to help at-risk persons modify those behaviors which can result in the transmission of HIV. Families, schools, churches, health care providers, and community-based organizations, as well as public health agencies, all need to be involved in this task.
- Finally, prevention activities must continue to be based on a thorough understanding of: 1) the epidemiology of the HIV/AIDS epidemic in one's geographic area, and 2) which prevention efforts are likely to have success in the population(s) being targeted. (More information on HIV prevention can be obtained by contacting the Section of STD/HIV/AIDS Prevention and Care Services at 573/751-6144, or by visiting their web site at http://www.health.state.mo.us/sshapcs/SSHAPCS.html.)

For a more detailed description of the epidemiology of HIV/AIDS in Missouri, see the *1999 Epidemiologic Profiles of HIV/AIDS and STDs in Missouri*. This document, along with other reports on HIV/AIDS and STDs, is available on the MDOH web site at http://www.health.state.mo.us/HIV_STD/HIVstatsheet.html.

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1. HIV cases are persons infected with human immunodeficiency virus (HIV) whose disease has not progressed to the point that they have met the AIDS case definition and become AIDS cases. In general, HIV cases represent individuals more recently infected with HIV, while AIDS cases represent persons less recently infected.
2. Persons residing in correctional facilities at the time of diagnosis are not included in these figures.
3. For purposes of this report, outstate counties include all Missouri counties except St. Louis County (and St. Louis City), Jackson County, Platte County, and Clay County.
4. A more detailed summary of the results from the HITS II study is presented in the *1999 Epidemiologic Profiles of HIV/AIDS and STDs in Missouri*, available in PDF format on the MDOH web site. **http://www.health.state.mo.us/HIV_STD/99MainFS.pdf**
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12. CDC. Management of possible sexual, injecting-drug-use, or other nonoccupational exposure to HIV, including considerations related to antiretroviral therapy. Public Health Service Statement. *MMWR* 1998; 47 (No. RR-17). **http://www.hivatis.org./trtgdlns.html**
13. Missouri law 191.653 RSMo. **http://www.moga.state.mo.us/statutes/C100-199/1910653.HTM**
14. Missouri Department of Health rules 19 CSR 20-20.020 and 19 CSR 20-080 **http://mosl.sos.state.mo.us/csr/19csr/19c20-20.pdf**
15. CDC. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1). **http://www.cdc.gov/nchstp/dstd/1998_STD_Guidlines/1998_guidelines_for_the_treatment.htm**
16. CDC. HIV prevention through early detection and treatment of other sexually transmitted diseases—United States. *MMWR* 1998;47(No. RR-12). **http://www.cdc.gov/epo/mmwr/preview/ind98_rr.html**

New Web-Based Training on Hepatitis C for Health Professionals

The Centers for Disease Control and Prevention (CDC) has posted on its World-Wide Web site an interactive web-based training program titled, "Hepatitis C: What Clinicians and Other Health Professionals Need to Know." The program is at **http://www.cdc.gov/hepatitis.**

This program provides users with up-to-date information on the epidemiology, diagnosis and management of hepatitis C virus (HCV) infection and HCV-related chronic disease. Users also can test their knowledge of the material through study questions at the end of each section and case studies at the end of the program. Continuing medical and nursing education credits are available free from CDC on completion of the training. The American Academy of Family Physicians also will grant the academy's education credits on completion of training and filing with the academy.

Influenza Vaccine Recommendations

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a physician. Prophylactic use of the antiviral agents amantadine or rimantadine is an option for preventing influenza A among such persons. However, persons who have a history of anaphylactic hypersensitivity to vaccine components but who are also at high risk for complications of influenza can benefit from vaccine after appropriate allergy evaluation and desensitization. Information about vaccine components can be found in package inserts from each manufacturer.

Persons with acute febrile illness usually should not be vaccinated until their symptoms have abated. However, minor illnesses with or without fever do not contraindicate the use of influenza vaccine, particularly among children with mild upper respiratory tract infection or allergic rhinitis.

Timing

The optimal time to vaccinate persons in high-risk groups is usually from the beginning of October through mid-November, because influenza activity in the United States generally peaks between late December and early March.

Simultaneous Administration of Other Vaccines, Including Childhood Vaccines

The target groups for influenza and pneumococcal vaccination overlap considerably. For persons at high risk who have not previously been vaccinated with pneumococcal vaccine, health-care providers should strongly consider administering pneumococcal and influenza vaccines concurrently. Both vaccines can be administered at the same time at different sites without increasing side effects. However, influenza vaccine is administered each year, whereas pneumococcal vaccine is not. Children at high risk for influenza-related complications can receive influenza vaccine at the same time they receive other routine vaccinations.

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Alternate forms of this publication for persons with disabilities may be obtained by contacting the Missouri Department of Health, Office of Epidemiology, P.O. Box 570, Jefferson City, MO 65102-0570, Ph: (573) 751-6128. TDD users can access the preceding phone number by calling (800) 735-2966.

NEW

Missouri Childhood Lead Testing Guidelines

The Missouri Department of Health and the Missouri Medicaid Program jointly announce the release of new Childhood Lead Testing and Follow-Up Guidelines. Developed in cooperation with state and local, public and private health care providers, the new guidelines integrate recommendations of the American Academy of Pediatrics and the Centers for Disease Control and Prevention.

Current data show the proportion of Missouri children with elevated blood lead levels to be **nearly three times higher than the national average**. For this reason all health care providers are advised to test for elevated blood lead levels:

- All children at least twice in their first 24 months of life, e.g. at 12 and 24 months of age (as required by Medicaid).
- Any child between 12 and 72 months (6 years) that do not have a documented blood lead test.

Other changes in the new Childhood Lead Testing and Follow-up Guidelines are:

- Reduced number of questions in the verbal risk assessment.
- Revised confirmatory testing and case follow-up guidelines.
- Revised Medicaid HCY Lead Risk Assessment Guide form that reflects the changes. Revised forms may be obtained by calling the Missouri Medicaid Program at (573) 635-2434.

The revised plan and guidelines are available through the Department of Health web site at **http://www.health.state.mo.us** under "Resource Material," or a laminated copy appropriate for display may be obtained by calling the Missouri Department of Health, Childhood Lead Poisoning Prevention Program at (800) 575-6267 or (573) 526-4911.